

DEPUTY CHIEF OF STAFF FOR RESEARCH DEVELOPMENT AND AC--ETC F/G 5/1
DEPARTMENT OF THE ARMY JUSTIFICATION OF ESTIMATES FOR FISCAL YE--ETC(U)
JAN 81

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**DEPARTMENT OF THE
ARMY**

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1982 (U)

Submitted to Congress

JANUARY 1981



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RESEARCH DEVELOPMENT, TEST AND EVALUATION, ARMY

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-- 1 OF 12
-- 1 - AD NUMBER: A097382
-- 5 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 5. OTHER PROCUREMENT ARMY.
--11 - REPORT DATE: JAN . 1981

-- 2 OF 12
-- 1 - AD NUMBER: A097381
-- 5 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 4. AMMUNITION.
--11 - REPORT DATE: JAN . 1981

-- 3 OF 12
-- 1 - AD NUMBER: A097380
-- 5 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS, JANUARY 1981.
-- PART 3. WEAPONS AND TRACKED COMBAT VEHICLES.
--11 - REPORT DATE: JAN . 1981

-- 4 OF 12
-- 1 - AD NUMBER: A097379
-- 5 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 2. MISSILES.
--11 - REPORT DATE: JAN . 1981

-- 5 OF 12
-- 1 - AD NUMBER: A097378
-- 5 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 1. AIRCRAFT.
--11 - REPORT DATE: JAN . 1981

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 5.

--11 - REPORT DATE: JAN , 1980

-- 7 OF 12

-- 1 - AD NUMBER: A082808

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 4.

--11 - REPORT DATE: JAN , 1980

-- 8 OF 12

-- 1 - AD NUMBER: A082807

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 3.

--11 - REPORT DATE: JAN , 1980

-- 9 OF 12

-- 1 - AD NUMBER: A082806

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 2.

--11 - REPORT DATE: JAN , 1980

-- 10 OF 12

-- 1 - AD NUMBER: A082805

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 1.

--11 - REPORT DATE: JAN , 1980

-- 11 OF 12

-- 1 - AD NUMBER: A082154

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.

--11 - REPORT DATE: JAN , 1980

-- 12 OF 12

-- 1 - AD NUMBER: A065299

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1980, SUBMITTED TO CONGRESS JANUARY 1979.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES WEAPONS AND TRACKED COMBAT
-- VEHICLES AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 1 THRU 5.

--11 - REPORT DATE: JAN , 1979

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**DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
APPROPRIATION LANGUAGE**

Section 1

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized by law; \$3,086,757 \$3,577,200, to remain available for obligation until September 30, 1982/ 1983. (10 U.S.C. 2353, 4503; Department of Defense Appropriation Act, 1980; additional authorizing legislation to be proposed.)

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15 JAN 81

Research, Development, Test, and Evaluation, Army

Army

Program and Financing (in thousands of dollars)

| Identification code | 21-2040-0-1-051 | Budget plan (amounts for RDT&E actions programmed) | | | Obligations | | |
|---|-----------------|---|-----------|-----------|-------------|-----------|-----------|
| | | 1980 actual | 1981 est. | 1982 est. | 1980 actual | 1981 est. | 1982 est. |
| Program by activities: | | | | | | | |
| Direct: | | | | | | | |
| 1. Technology base | | | | | | | |
| 2. Advanced technology development | | | | | | | |
| 3. Strategic programs | | | | | | | |
| 4. Tactical programs | | | | | | | |
| 5. Intelligence and communications | | | | | | | |
| 6. Defensewide mission support | | | | | | | |
| Total direct | | | | | | | |
| Reimbursable program (total) | | | | | | | |
| Total | | | | | | | |
| 10.0001 | | 3,455,126 | 3,649,057 | 4,129,700 | 3,405,175 | 3,655,314 | 4,096,054 |
| Financing: | | | | | | | |
| Offsetting collections from: | | | | | | | |
| Federal funds | | | | | | | |
| Trust funds | | | | | | | |
| Non-federal sources | | | | | | | |
| Recovery of prior year obligations, obl plan | | | | | | | |
| Unobligated balance available, start of year: | | | | | | | |
| For completion of prior year budget plans | | | | | | | |
| Available to finance new budget plans | | | | | | | |
| Reprogramming from or to prior year budget plan | | | | | | | |
| Unobligated balance transferred to other accounts | | | | | | | |
| Unobligated balance available, end of year | | | | | | | |
| Unobligated balance lapsing | | | | | | | |
| 39.0001 | | 2,846,431 | 3,086,757 | 3,577,200 | 2,846,431 | 3,086,757 | 3,577,200 |
| Budget authority | | | | | | | |
| Budget authority: | | | | | | | |
| Appropriation | | | | | | | |
| Transferred to other accounts | | | | | | | |
| Transferred from other accounts | | | | | | | |
| 43.0001 | | 2,844,431 | 3,086,757 | 3,577,200 | 2,844,431 | 3,086,757 | 3,577,200 |
| 50.0001 | | 2,000 | | | 2,000 | | |
| Relation of obligations to outlays: | | | | | | | |
| Obligations incurred, net | | | | | | | |
| Obligated balance, start of year | | | | | | | |
| Obligated balance, end of year | | | | | | | |
| Adjustments in expired accounts | | | | | | | |
| Adjustments in unexpired accounts | | | | | | | |
| 90.0001 | | | | | 2,707,031 | 2,511,000 | 3,468,000 |
| Outlays | | | | | | | |

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Army

Research, Development, Test, and Evaluation, Army
Program and Financing (in thousands of dollars)

Identification code 21-2040-0-1-081 15 JAN 81
1979 Fiscal year program obligations

Budget plan (amounts for
RDTE actions programmed)

1980 actual 1981 est. 1982 est. 1980 actual 1981 est. 1982 est.

Program by activities:

Direct:

1. Technology base
2. Advanced technology development
3. Strategic programs
4. Tactical programs
5. Intelligence and communications
6. Defensewide mission support

Total direct

Reimbursable program (total)

Total

10.0001

Financing:

Offsetting collections from:

Adjustment to pay federal fund orders

Adjustment to pay trust fund orders

Recovery of prior year obligations, obi plan

Per completion of prior year budget plans

Available to finance new budget plans

Reprogramming from or to prior year budget plans

Unobligated balance transferred to other

accounts

Unobligated balance lapsing

Budget authority

40.0001

20,189
5,224
1,160
78,960
2,225
25,518
131,286
80,454
211,740

18,971
9
222
-1,573
-232,216
-2,000

2,000
5,847

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| Army | | Research, Development, Test, and Evaluation, Army | | 15 JAN 81 | |
|--|--|--|-----------|--------------------------|-----------|
| Identification code | | 21-2040-0-1-051 | | 1980 Fiscal year program | |
| | | Program and Financing (in thousands of dollars) | | Obligations | |
| | | Budget plan (amounts for RDT&E actions programmed) | | | |
| | | 1980 actual | 1981 est. | 1982 est. | 1981 est. |
| | | 1980 actual | 1981 est. | 1982 est. | 1981 est. |
| Program by activities: | | | | | |
| Direct: | | | | | |
| 1. Technology base | | | | | |
| 2. Advanced technology development | | | | | |
| 3. Strategic programs | | | | | |
| 4. Tactical programs | | | | | |
| 5. Intelligence and communications | | | | | |
| 6. Defensewide mission support | | | | | |
| Total direct | | 462,432 | ..... | ..... | 22,128 |
| Reimbursable program (total) | | 140,164 | ..... | ..... | 10,396 |
| Total | | 241,478 | ..... | ..... | 937 |
| | | 1,470,398 | ..... | ..... | 71,009 |
| | | 32,504 | ..... | ..... | 4,320 |
| | | 489,454 | ..... | ..... | 24,421 |
| Total direct | | 2,846,431 | ..... | ..... | 133,212 |
| Reimbursable program (total) | | 608,695 | ..... | ..... | 128,479 |
| Total | | 3,455,126 | ..... | ..... | 261,691 |
| Financing: | | | | | |
| Offsetting collections from: | | | | | |
| Federal funds | | | | | |
| Trust funds | | | | | |
| Non-federal sources | | | | | |
| Unobligated balance available, start of year | | | | | |
| Unobligated balance available, end of year | | | | | |
| Budget authority | | 2,846,431 | ..... | ..... | 261,691 |
| Budget authority: |  | ..... | ..... | ..... | ..... |
| Appropriation | | 2,853,331 | ..... | ..... | ..... |
| Transferred to other accounts | | -10,100 | ..... | ..... | ..... |
| Transferred from other accounts | | 1,200 | | | |
| Appropriation (adjusted) | | 2,844,431 | | | |
| Reappropriation | | 2,000 | | | |

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| Army | | Research, Development, Test, and Evaluation, Army | | 15 JAN 81 | |
|--|--|--|-----------|--------------------------|-----------|
| Identification code | | 21-2040-0-1-051 | | 1981 Fiscal year program | |
| | | Program and Financing (in thousands of dollars) | | Obligations | |
| | | Budget plan (amounts for RDT&E actions programmed) | | | |
| | | 1980 actual | 1981 est. | 1982 est. | 1982 est. |
| Program by activities: | | | | | |
| Direct: | | | | | |
| 1. Technology base | | | | | |
| 2. Advanced technology development | | | | | |
| 3. Strategic programs | | | | | |
| 4. Tactical programs | | | | | |
| 5. Intelligence and communications | | | | | |
| 6. Defensewide mission support | | | | | |
| Total direct | | 505,607 | | 478,471 | 27,136 |
| Reimbursable program (total) | | 166,316 | | 157,404 | 8,912 |
| Total | | 268,246 | | 253,863 | 14,383 |
| | | 1,527,643 | | 1,445,787 | 81,856 |
| | | 37,472 | | 35,480 | 1,992 |
| | | 581,473 | | 550,279 | 31,194 |
| Total direct | | 3,086,757 | | 2,921,284 | 165,473 |
| Reimbursable program (total) | | 562,300 | | 472,339 | 89,961 |
| Total | | 3,649,057 | | 3,393,623 | 255,434 |
| Financing: | | | | | |
| Offsetting collections from: | | | | | |
| Federal funds | | | | | |
| Trust funds | | | | | |
| Non-federal sources | | | | | |
| Unobligated balance available, start of year | | | | | |
| Unobligated balance available, end of year | | | | | |
| Budget authority | | 3,086,757 | | 3,086,757 | |

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| Army | Research, Development, Test, and Evaluation, Army | | | | 15 JAN 81 | | |
|--|---|---|-----------|-----------|-------------|--------------------------|-----------|
| | | Program and Financing (in thousands of dollars) | | | | 1982 Fiscal year program | |
| | | Budget plan (amounts for | | | | Obligations | |
| | | RDT&E actions programmed) | | | | | |
| Identification code | 21-2040-0-1-051 | 1980 actual | 1981 est. | 1982 est. | 1980 actual | 1981 est. | 1982 est. |
| Program by activities: | | | | | | | |
| Direct: | | | | | | | |
| 1. Technology base | | | | | | | |
| 2. Advanced technology development | | | | | | | |
| 3. Strategic programs | | | | | | | |
| 4. Tactical programs | | | | | | | |
| 5. Intelligence and communications | | | | | | | |
| 6. Defensewide mission support | | | | | | | |
| Total direct | | | | | | | |
| Reimbursable program (total) | | | | | | | |
| Total | | | | | | | |
| Financing: | | | | | | | |
| Offsetting collections from: | | | | | | | |
| Federal funds | | | | | | | |
| Trust funds | | | | | | | |
| Non-federal sources | | | | | | | |
| Unobligated balance available, and of year | | | | | | | |
| Budget authority | | | | | | | |
| Total | | | | | | | |

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Army

Research, Development, Test, and Evaluation, Army

15 JAN 81

Object Classification (in thousands of dollars)

| Identification code | 21-2040-0-1-051 | 1980 actual | 1981 est | 1982 est |
|----------------------------------|--|-------------|-----------|-----------|
| Direct obligations | | | | |
| Personnel compensation: | | | | |
| 111.101 | Full-time permanent positions | 294,635 | 384,836 | 359,000 |
| 111.901 | Positions other than full-time permanent | 2,607 | 3,000 | 3,000 |
| 111.901 | Other personnel compensation | 13,121 | 14,000 | 14,000 |
| 111.901 | Total personnel compensation | 310,363 | 401,836 | 376,000 |
| 112.101 | Personnel benefits: civilian personnel | 29,515 | 38,763 | 37,900 |
| 121.001 | Travel and transportation of persons | 20,936 | 32,200 | 36,300 |
| 122.001 | Transportation of things | 6,596 | 13,500 | 14,000 |
| 123.201 | Communications, utilities and other rent | 18,460 | 24,500 | 27,900 |
| 124.001 | Printing and reproduction | 692 | 2,700 | 3,500 |
| Other services: | | | | |
| 125.002 | Purchases from industrial funds | 248,500 | 270,000 | 312,600 |
| 125.003 | Contracts | 2,100,408 | 2,134,697 | 2,573,954 |
| 126.001 | Supplies and materials | 48,676 | 60,400 | 102,100 |
| 131.001 | Equipment | 59,243 | 54,700 | 57,400 |
| 141.001 | Grants, subsidies, and contributions | 1,116 | 1,200 | 1,200 |
| 199.001 | Total direct obligations | 2,844,505 | 3,054,496 | 3,542,054 |
| Reimbursable obligations: | | | | |
| Personnel compensation: | | | | |
| 211.101 | Full-time permanent positions | 139,000 | 98,100 | 105,200 |
| 212.101 | Personnel benefits: civilian personnel | 13,215 | 10,000 | 10,200 |
| 221.001 | Travel and transportation of persons | 12,331 | 10,900 | 12,100 |
| 222.001 | Transportation of things | 3,674 | 1,200 | 1,400 |
| 223.101 | Standard level user charges | 4,000 | 4,900 | 6,100 |
| 224.001 | Printing and reproduction | 400 | 600 | 600 |
| Other services: | | | | |
| 225.002 | Purchases from industrial funds | 83,300 | 44,800 | 105,900 |
| 225.003 | Contracts | 236,979 | 368,618 | 257,400 |
| 226.001 | Supplies and materials | 46,085 | 50,200 | 46,200 |
| 231.001 | Equipment | 21,686 | 11,600 | 9,900 |
| 299.001 | Total reimbursable obligations | 560,670 | 600,818 | 554,000 |
| 999.901 | Total obligations | 3,405,175 | 3,655,314 | 4,096,054 |

PERSONNEL SUMMARY

| | | | |
|--|--------|--------|--------|
| TOTAL NUMBER OF PERMANENT POSITIONS | 18,658 | 19,425 | 18,800 |
| TOTAL COMPENSABLE WORK YEARS: | 19,563 | 20,050 | 19,143 |
| FULL-TIME EQUIVALENT EMPLOYMENT | 48% | 345 | 291 |
| FULL-TIME EQUIVALENT OF OVERTIME AND HOLIDAY HOURS | 50,112 | 50,112 | 50,112 |
| AVERAGE GS SALARY | 9,21 | 9,33 | 9,33 |
| AVERAGE GS GRADE | 23,312 | 25,433 | 25,433 |
| AVERAGE SALARY OF UNPAID POSITIONS | 18,000 | 19,537 | 20,125 |

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PROGRAM ELEMENT LISTING
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| 2. Budget Activities | 10 |
| 3. FYDP Programs | 10 |

Details by Budget Activity:

| | |
|--|----|
| 1. Technology Base | 11 |
| 2. Advanced Technology Development | 13 |
| 3. Strategic Programs | 15 |
| 4. Tactical Programs | 15 |
| 5. Intelligence and Communications | 20 |
| 6. Defensewide Mission Support | 21 |

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Section 2 (Contd)

PROGRAM ELEMENT LISTING INTRODUCTION AND EXPLANATION OF CONTENTS

This section has been prepared for the purpose of providing summary program element budget information concerning the US Army Research, Development, Test and Evaluation Program. The listing is preceded by three summaries: the first by Research Categories (Program), the second by Budget Activities, and the third by FYDP Programs.

A separate document, Descriptive Summaries, furnishes detail by project. In addition, it furnishes narrative information on all Research, Development, Test and Evaluation (RDTE) program elements and projects of \$5.0 million or more. The index number in the right-hand column of this Program Element Listing refers to the appropriate page in the Descriptive Summaries. The funding information reflected in these volumes corresponds to that contained in the President's Budget except for FY 1980. FY 1980 in the Descriptive Summaries is restructured for comparability with the FY 1982 budget request.

A direct comparison of FY 1980, FY 1981, and FY 1982 data in this Program Element Listing with data submitted in the Program Element Listing dated January 1980 will reveal significant differences. Narrative explanation of these changes is included in the appropriate individual Program Element Descriptive Summary.

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DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

SUMMARY

DATE 15 JAN 1981

THOUSANDS OF DOLLARS

SUMMARY RECAP OF RESEARCH CATEGORIES

| | FY 1980 | FY 1981 | FY 1982 | FY 1983 |
|--|-----------|-----------|-----------|-----------|
| RESEARCH | | | | |
| EXPLORED DEVELOPMENT | 130,701 | 144,577 | 179,204 | 212,003 |
| ADVANCED DEVELOPMENT | 331,731 | 361,030 | 437,507 | 492,580 |
| ENGINEERING DEVELOPMENT | 631,150 | 701,441 | 921,950 | 1,367,639 |
| MANAGEMENT AND SUPPORT | 1,171,281 | 1,183,394 | 1,145,728 | 1,042,227 |
| | 448,323 | 534,627 | 687,561 | 739,686 |
| RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6) | 2,713,186 | 2,925,069 | 3,371,949 | 3,854,535 |
| OPERATIONAL SYSTEMS DEVELOPMENT | 133,245 | 161,688 | 205,251 | 317,518 |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY | 2,846,431 | 3,086,757 | 3,577,200 | 4,172,053 |

SUMMARY RECAP OF BUDGET ACTIVITIES

| | FY 1980 | FY 1981 | FY 1982 | FY 1983 |
|--|-----------|-----------|-----------|-----------|
| TECHNOLOGY BASE | 462,432 | 505,607 | 616,710 | 704,983 |
| ADVANCED TECHNOLOGY DEVELOPMENT | 140,164 | 166,316 | 207,554 | 324,991 |
| STRATEGIC PROGRAMS | 241,479 | 263,246 | 315,516 | 405,766 |
| TACTICAL PROGRAMS | 1,470,398 | 1,527,643 | 1,614,337 | 1,837,679 |
| INTELLIGENCE AND COMMUNICATIONS | 32,504 | 37,472 | 55,336 | 92,525 |
| DEFENSEWIDE MISSION SUPPORT | 499,454 | 581,473 | 737,718 | 802,109 |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY | 2,846,431 | 3,086,757 | 3,577,200 | 4,172,053 |

SUMMARY RECAP OF FYDP PROGRAMS

| | FY 1980 | FY 1981 | FY 1982 | FY 1983 |
|--|-----------|-----------|-----------|-----------|
| STRATEGIC FORCES | 100,741 | 119,473 | 140,511 | 39,500 |
| GENERAL PURPOSE FORCES | 32,504 | 42,215 | 55,240 | 209,303 |
| INTELLIGENCE AND COMMUNICATIONS | 2,713,186 | 2,925,069 | 3,371,949 | 66,715 |
| RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6) | 2,846,431 | 3,086,757 | 3,577,200 | 3,854,535 |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY | 2,846,431 | 3,086,757 | 3,577,200 | 4,172,053 |

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DEPARTMENT OF THE ARMY
FY 1982 R D T F PROGRAM
APPROPRIATION 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

EXHIBIT R-1

| PROGRAM LINE NUMBER | ITEM DESCRIPTION | ACT | FY 1980 | FY 1981 | FY 1982 | TOTALS | | DESCRIPTIVE SUMMARY PAGE NUMBER |
|------------------------|---|-----|---------|---------|---------|---------|---------|---------------------------------------|
| | | | | | | 1980-81 | 1981-82 | |
| 1 | 61101A IN-HOUSE FOR INDEPENDENT RESEARCH | 1 | 17,151 | 15,119 | 21,900 | 24,320 | 0 | 1-1 |
| 2 | 61102A DEFENSE RESEARCH SCIENCES | 1 | 113,640 | 121,903 | 157,335 | 187,635 | 0 | 1-6 |
| 3 | 62103A MATERIALS | 1 | 17,315 | 11,525 | 11,515 | 12,557 | 0 | 1-90 |
| 4 | 62111A ATMOSPHERIC INVESTIGATIONS | 1 | 5,917 | 5,711 | 6,540 | 6,730 | 0 | 1-95 |
| 5 | 62120A FLUID MECHANICS/FLUIDICS | 1 | 6,787 | 6,082 | 7,030 | 9,765 | 0 | 1-101 |
| 6 | 62201A AIRCRAFT PROPULSION TECHNOLOGY | 1 | 1,901 | 1,614 | 2,634 | 2,975 | 0 | 1-108 |
| 7 | 62202A AIRCRAFT PROPULSION TECHNOLOGY | 1 | 6,741 | 5,324 | 7,405 | 3,155 | 0 | 1-113 |
| 8 | 62203A AERODYNAMICAL TECHNOLOGY | 1 | 16,025 | 17,713 | 21,519 | 25,535 | 0 | 1-119 |
| 9 | 62213A AIRCRAFT TECHNOLOGY | 1 | 1,170 | 1,419 | 1,766 | 2,009 | 0 | 1-124 |
| 10 | 62214A MISSILE TECHNOLOGY | 1 | 28,169 | 26,167 | 33,753 | 42,075 | 0 | 1-129 |
| 11 | 62202A HIGH ENERGY LASER TECHNOLOGY | 1 | 1,320 | 10,175 | 21,500 | 32,077 | 0 | 1-136 |
| 12 | 62201A TANK AND AUTOMOTIVE TECHNOLOGY | 1 | 12,152 | 12,911 | 16,217 | 19,979 | 0 | 1-143 |
| 13 | 62201A LARGE CAL AND NUCLEAR TECHNOLOGY | 1 | 20,310 | 24,697 | | | | 1-148 |
| 14 | 62213A SMALL CAL AND FIRE CONTR. TECHNOLOGY | 1 | 8,957 | 11,021 | 16,704 | 12,730 | 0 | 1-154 |
| 15 | 62214A BALLISTICS TECHNOLOGY | 1 | 17,176 | 17,687 | 25,203 | 28,790 | 0 | 1-160 |
| 16 | 62202A CHEMICAL PROPULSION/CHEMICAL CONTR. TECH | 1 | 6,015 | 5,389 | 6,760 | 7,012 | 0 | 1-165 |
| 17 | 62201A COMMUNICATIONS TECH | 1 | 10,461 | 6,566 | 8,162 | 8,975 | 0 | 1-170 |
| 18 | 62203A OPT. SURV. TARGET ACQ/ID | 1 | 3,127 | 3,165 | 3,534 | 4,589 | 0 | 1-178 |
| 19 | 62204A ENVIRONMENTAL CRITERIA DEV | 1 | 12,140 | 13,119 | 2,315 | 2,500 | 0 | 1-183 |
| 20 | 62205A ELECTRONIC AND ELECTRONIC DEVICES | 1 | 11,740 | 11,411 | 15,341 | 16,220 | 0 | 1-188 |
| 21 | 62206A OPT. ELECTRONIC AND OPT. DEVICES | 1 | 4,431 | 5,070 | 6,627 | 14,360 | 0 | 1-199 |
| 22 | 62207A LASERS & OPTICS | 1 | 10,111 | 11,713 | 14,361 | 6,954 | 0 | 1-204 |
| 23 | 62208A RESEARCH INVESTIGATIONS | 1 | 10,111 | 11,713 | 14,361 | 15,019 | 0 | 1-208 |

[illegible]

APPRECIATION 2040 A RESEARCH DEVELOPMENT T 31 + EVA;

| LINE NO. | FUNCTIONAL ELEMENT | ITEM NOMENCLATURE | ACCT | FISCAL YEAR | | | UNIT PRICE | | | TOTAL | COST | PAGE NUMBER | DESCRIPTIVE SUMMARY |
|----------|--------------------|--|------|-------------|---------|---------|------------|----|----|-------|------|-------------|---------------------|
| | | | | FY 1960 | FY 1961 | FY 1962 | 17 | 18 | 19 | | | | |
| 24 | 62715A | TACTICAL ELECTRONIC WARFARE TECHNOLOGY | 1 | 6,000 | 6,000 | | | | | | | 1-213 | |
| 25 | 62716A | IMPUR FACTORS ENTER IN SYS DEV | 1 | 6,200 | | 6,200 | | | | | | 1-224 | |
| 26 | 62717A | HUMAN PERFORMANCE EFFECTS RESEARCH | 1 | 2,500 | 3,100 | 1,500 | | | | | | 1-228 | |
| 27 | 62718A | MOBILITY AND MEDICAL LOGISTICS TECH | 1 | 4,000 | 2,000 | 6,000 | | | | | | 1-233 | |
| 28 | 62719A | ENVIRONMENTAL QUALITY TECH | 1 | 9,000 | 6,000 | 6,000 | | | | | | 1-238 | |
| 29 | 62720A | MANAGEMENT SUPPORT TRAINING | 1 | 9,000 | 5,100 | 7,000 | | | | | | 1-243 | |
| 30 | 62722A | CLOTHING EQUIP AND QUARTER MASTER | 1 | 6,000 | 6,000 | 6,000 | | | | | | 1-248 | |
| 31 | 62723A | JOINT SVC FOOD SYS TECH | 1 | 8,000 | 5,000 | 1,000 | | | | | | 1-259 | |
| 32 | 62725A | COMPUTER AND INFORMATION SCIENCE | 1 | 1,000 | 1,000 | 1,000 | | | | | | 1-265 | |
| 33 | 62726A | ARMY SUPPORT BATTAL FORMS | 1 | 2,000 | | | | | | | | --- | |
| 34 | 62727A | NON SYSTEM TRAINING DEVICES | 1 | 2,000 | 2,000 | 2,000 | | | | | | 1-271 | |
| 35 | 62730A | COLD REGIONS ENGINEERING TECHNOLOGY | 1 | 2,000 | 3,000 | 3,000 | | | | | | 1-277 | |
| 36 | 62731A | MILITARY FACILITIES ENGINEERING TECHNOLOGY | 1 | 2,000 | 2,000 | 2,000 | | | | | | 1-282 | |
| 37 | 62732A | LIV SUPPORTING TECHNOLOGY | 1 | 2,500 | 1,000 | 2,000 | | | | | | 1-287 | |
| 38 | 62733A | MOBILITY EQUIPMENT TECHNOLOGY | 1 | 12,000 | 11,000 | 12,000 | | | | | | 1-294 | |
| 39 | 62735A | NEW DEFENSE AGAINST CHEM AGENTS | 1 | 5,000 | 11,000 | 12,000 | | | | | | 1-301 | |
| 40 | 62736A | TACTICAL AIR TECH | 1 | | 7,000 | 6,000 | | | | | | 1-307 | |
| 41 | 62740A | MILITARY DIST SE DEFENSE TECH | 1 | 10,000 | 10,000 | 10,000 | | | | | | 1-313 | |
| 42 | 62741A | MIL PSYCHIATRY/REHAB INJURY (H) | 1 | 3,484 | | | | | | | | --- | |
| 43 | 62742A | COMBAT CASUALTY CARE TECH | 1 | 3,500 | 4,000 | 6,000 | | | | | | 1-326 | |
| 44 | 62773A | HELICOPTER COMBAT CREW ARM MEDICINE | 1 | 3,047 | | | | | | | | --- | |
| 45 | 62775A | COMBAT MAXIM/OCCAS INJURY | 1 | 1,285 | 610 | 1,494 | | | | | | 1-331 | |
| 46 | 62776A | MED OFF AGAINST BIOLOGICAL AGENTS | 1 | 6,000 | | | | | | | | --- | |

UNCLASSIFIED

DEPARTMENT OF THE ARMY
FY 1982 R D T + F PROGRAM

FY 1962 R D T + F 1.0 (3.4M)

REPUTATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

11:17 R-1

DATE: 1 6 11 1931

| PROGRAM ELEMENT NUMBER | ITEM NOMENCLATURE | ACT | FY 1983 | | FY 1984 | THOUSAND DOLLARS | | F | S | C | DESCRIPTIVE SUMMARY PAGE NUMBER |
|------------------------------|---|-----|---------|---------|---------|------------------|---------|-------|---|---|---------------------------------------|
| | | | FY 1983 | FY 1984 | | FY 1983 | FY 1984 | | | | |
| 51 | 63277A SYSTEMS HEALTH DIAGN. PREVENT. TECH. | 1 | 6,572 | 12,310 | 18,12 | 10,612 | U | 1-335 | | | |
| 52 | 63278A COMBAT MEDICAL MATER. I. | 1 | 457 | | | | U | --- | | | |
| 53 | 63280A MEDICAL SYSTEMS IN CHEMICAL DEFENSE | 1 | 2,125 | | | | U | --- | | | |
| 54 | 63281A ENERGY TECH. APPL. FOR MILITARY FACIL. | 1 | | 1,450 | 1,709 | 1,890 | U | 1-353 | | | |
| | TECHNOLOGY BASE | | 432,432 | 555,607 | 616,710 | 764,363 | | | | | |
| 55 | 63102A MATERIALS SCALE-UP | 2 | 2,904 | 2,925 | 5,535 | 9,966 | U | 1-357 | | | |
| 56 | 63104A FUELS AND LUBRICANTS | 2 | 3,833 | 943 | 2,349 | 2,912 | U | 1-362 | | | |
| 57 | 63201A AIRCRAFT POWER PLANTS AND PROPULSION | 2 | 8,410 | 4,351 | 3,019 | 26,761 | U | 1-366 | | | |
| 58 | 63206A AIRCRAFT WEAPONS | 2 | 770 | 2,540 | 10,511 | 24,790 | U | 1-371 | | | |
| 59 | 63207A AIRCRAFT AVIONICS EQUIPMENT | 2 | 1,537 | 2,320 | 4,190 | 7,300 | U | 1-380 | | | |
| 60 | 63209A AIR MOBILITY SUPPORT | 2 | 301 | 1,856 | 1,842 | 3,201 | U | 1-385 | | | |
| 61 | 63211A ROTARY WING CONTROLS/PODS/STRUCTURES | 2 | 5,067 | 12,921 | 27,022 | 41,084 | U | 1-390 | | | |
| 62 | 63212A TILT ROTAR RESEARCH ACFT (TR) | 2 | 950 | | | | U | --- | | | |
| 63 | 63216A SYNTHETIC FLIGHT SIMULATORS | 2 | 2,099 | 6,437 | 1,804 | 5,764 | U | 1-403 | | | |
| 64 | 63218A AIRCRAFT EQUIP. AND TECHNIQUES | 2 | 685 | 1,269 | 2,752 | 4,709 | U | 1-411 | | | |
| 65 | 63221A NOE AVIATION AND NAVIGATION EQUIPMENT | 2 | | 1,609 | 4,374 | 11,570 | U | 1-415 | | | |
| 66 | 63305A TERMINALLY GUIDED MISSILES | 2 | 2,970 | 10,658 | 13,273 | 19,635 | U | 1-420 | | | |
| 67 | 63313A HSL/ROCKET COMPONENTS | 2 | 2,024 | 6,419 | 317 | 530 | U | 1-428 | | | |
| 68 | 63314A HLL-ENERGY LASER COMPONENTS | 2 | 19,000 | | | | U | --- | | | |
| 69 | 63602A ADVANCED LAND MOB. SYSTEMS CONCEPTS | 2 | 17,915 | 34,428 | 9,421 | 16,614 | U | 1-432 | | | |
| 70 | 63606A LANDMINE WARFARE BARRIER DEV. | 2 | 2,076 | 4,031 | 6,923 | 9,518 | U | 1-436 | | | |
| 71 | 63607A JOINT SERVICE SMALL ARMS PROGRAM (ISSAP) | 2 | 700 | | | | U | --- | | | |
| 72 | 63612A COUNTERMINE AND BARRIER DEVELOPMENTS | 2 | 1,733 | | | | U | --- | | | |

UNCLASSIFIED

UNCLASSIFIED

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM
EXHIBIT R-1
DATE: 15 JAN 1981

| PROGRAM LINE ELEMENT NO | ITEM NOMENCLATURE | ACT | THOUSANDS OF DOLLARS | | | | S | E | C | P | PAGE NUMBER |
|----------------------------------|---|-----|----------------------|---------|---------|---------|---|---|---|---|-------------|
| | | | FY 1980 | FY 1981 | FY 1982 | FY 1983 | | | | | |
| 69 | 63621A COMBAT VEHICLE PROPULSION SYS | 2 | 5,810 | 4,590 | 13,186 | 19,514 | U | | | | 1-441 |
| 70 | 63626A ADVANCED DIESEL ENGINE | 2 | 14,200 | | | | U | | | | --- |
| 71 | 63631A CMBT VEH TURRET AND CHASSIS SUBSYS | 2 | 4,024 | 5,018 | 0,014 | 13,442 | U | | | | 1-448 |
| 72 | 63702A ELECTRIC POWER SOURCES | 2 | 3,700 | 3,916 | 5,177 | 3,260 | U | | | | 1-452 |
| 73 | 63710A NIGHT VISION ADVANCED DEVELOPMENT | 2 | 13,801 | 20,719 | 29,306 | 34,908 | U | | | | 1-456 |
| 74 | 63725A REMOTELY PILOTED VEHICLES/DRONES | 2 | 3,320 | 4,905 | 4,243 | 7,333 | U | | | | 1-465 |
| 75 | 63731A MANPOWER AND PERSONNEL | 2 | 3,085 | 3,065 | 4,675 | 6,360 | U | | | | 1-470 |
| 76 | 63732A COMBAT MEDICAL MATERIAL | 2 | 111 | 132 | 191 | 225 | U | | | | 1-475 |
| 77 | 63734A COMBAT ENGINEERING SYSTEMS | 2 | | | 269 | 258 | U | | | | 1-478 |
| 78 | 63739A HUMAN FACTORS IN TNG/OPER EFFECT | 2 | 1,909 | 2,272 | 3,165 | 3,777 | U | | | | 1-482 |
| 79 | 63742A ADV ELECTRONIC DEVICES DEV | 2 | 2,065 | | 2,278 | 4,397 | U | | | | 1-487 |
| 80 | 63743A EDUCATION AND TRAINING | 2 | 5,380 | 7,973 | 9,499 | 9,748 | U | | | | 1-493 |
| 81 | 63744A TRAINING SIMULATION | 2 | 2,746 | 1,413 | 2,243 | 2,422 | U | | | | 1-498 |
| 82 | 63747A SOLDIER SUPPORT/SURVIVABILITY | 2 | | 3,276 | 3,181 | 3,307 | U | | | | 1-502 |
| 83 | 63748A ADV DEV OF AUTOMATIC TEST ED/SYS | 2 | 1,430 | 8,483 | 14,631 | 9,665 | U | | | | 1-507 |
| 84 | 63749A TECHNICAL VULNERABILITY REDUCTION | 2 | 2,850 | 2,011 | 1,274 | 3,840 | U | | | | 1-514 |
| 85 | 63750A DRUG AND VACCINE DEVELOPMENT | 2 | 2,545 | 4,786 | 5,184 | 7,781 | U | | | | 1-519 |
| 86 | 63751A MEDICAL DEFENSE AGAINST CHEM WARFARE | 2 | | | 3,000 | 3,000 | U | | | | 1-523 |

UNCLASSIFIED

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM
EXHIBIT R-1
DATE 15 JAN 1981
THOUSANDS OF DOLLARS

| PROGRAM LINE ELEMENT NO NUMBER | ITEM NOMENCLATURE | ACT | FY 1980 | FY 1981 | FY 1982 | FY 1983 C | DESCRIPTIVE SUMMARY PAGE NUMBER |
|--------------------------------------|---|-----|---------|---------|---------|-----------|---------------------------------------|
| 87 | 63752A DEMILITARIZATION CONCEPTS | 2 | | | 4,000 | 7,000 U | 1-527 |
| | ADVANCED TECHNOLOGY DEVELOPMENT | | 140,104 | 166,316 | 207,556 | 324,991 | |
| 88 | 63304A RMD ADVANCED TECHNOLOGY | 3 | 119,854 | 123,391 | 129,690 | 146,623 U | 11-1 |
| 89 | 63308A BALLISTIC IISL DEF SYS TECH | 3 | 120,814 | 144,855 | 215,826 | 263,143 U | 11-6 |
| 90 | 63735A WMCCS ARCHITECTURE | 3 | 811 | | | | --- |
| | STRATEGIC PROGRAMS | | 241,479 | 268,246 | 345,516 | 409,766 | |
| 91 | 63215A JOINT SURVIVABILITY INVESTIGATIONS | 4 | 600 | 645 | 948 | 1,130 U | 11-11 |
| 92 | 63303A SURF-TO-SURF MSL ROCKET SYS | 4 | 70,203 | 790 | 3,057 | 16,705 U | 11-15 |
| 93 | 63307A SHORT RANGE AIR DEF SELF PROT WPN | 4 | | 6,842 | | | 11-21 |
| 94 | 63316A ADVANCED ROCKET CONTROL SYSTEM | 4 | | 27,100 | | | --- |
| 95 | 63320A CORPS SUPPORT WEAPON SYSTEM | 4 | 9,400 | 14,294 | 20,060 | 73,764 U | 11-22 |
| 96 | 63336A ARMY STANDOFF JAMMER SUPPRESSION SYSTEM | 4 | | | 4,000 | 6,000 U | 11-27 |
| 97 | 63604A NUCLEAR MUNITIONS AND RADIACS | 4 | 1,677 | 1,724 | | | 11-30 |
| 98 | 63607A JOINT SERVICE SMALL ARMS PROGRAM (JSSAP) | 4 | | | 3,600 | | 11-37 |
| 99 | 63608A WEAPON AND AMMUNITION | 4 | 616 | | | | --- |
| 100 | 63612A INF MANPORTABLE ANTI-ARMOR WPN SYS | 4 | 2,000 | 19,731 | 52,972 | 105,993 U | 11-42 |
| 101 | 63615A LETHAL CHEMICAL MUNITIONS CONCEPTS | 4 | 1,047 | 1,820 | 8,347 | 9,433 U | 11-46 |
| 102 | 63619A LANDMINE/BARRIER SYS | 4 | 2,181 | 4,471 | 6,102 | 8,728 U | 11-51 |
| 103 | 63623A LANDMINE SYSTEMS | 4 | 1,800 | | | | --- |
| 104 | 63627A COMBAT SUPPORT MUNITIONS | 4 | 2,815 | 2,334 | 6,275 | 4,029 U | 11-55 |
| 105 | 63628A FIELD ARTILLERY AMMO DEV | 4 | 4,581 | 12,398 | 25,190 | 28,777 U | 11-59 |
| 106 | 63629A FIELD ARTILLERY CANNON SYSTEMS | 4 | 3,646 | 5,852 | 2,074 | 15,556 U | 11-70 |

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

| PROGRAM LINE ELEMENT NO NUMBER | ITEM NOMENCLATURE | ACT | FY 1980 | FY 1981 | FY 1982 | THOUSANDS OF DOLLARS | | E | S | DESCRIPTIVE SUMMARY | PAGE NUMBER |
|---|---|-----|---------|---------|---------|----------------------|---|--------|---|------------------------|-------------|
| | | | | | | FY 1983 | C | | | | |
| 107 | 63632A ARMORED (TBT SPT VEHICLE FAMILY | 4 | 3,700 | 5,224 | 103 | | | U | | 11-75 | |
| 108 | 63635A ADVANCED MULTIPURPOSE ARMORED SYSTEM | 4 | | | 20,199 | | | 69,956 | U | 11-80 | |
| 109 | 63705A PHYSICAL SECURITY | 4 | 3,375 | 3,100 | 3,087 | | | 5,550 | U | 11-81 | |
| 110 | 63706A IDENTIFICATION-FRIEND OR FOE DEV | 4 | 4,045 | 406 | 7,647 | | | 4,194 | U | 11-88 | |
| 111 | 63707A COMMUNICATIONS DEVELOPMENT | 4 | 6,703 | 4,075 | 6,451 | | | 3,370 | U | 11-96 | |
| 112 | 63711A ACFT SURV/EW SELF-PROTECTION | 4 | 6,975 | 7,315 | 12,428 | | | 20,103 | U | 11-100 | |
| 113 | 63712A MAPPING AND GEODESY | 4 | 2,094 | | | | | | U | --- | |
| 114 | 63713A JOINT TACTICAL INFO DISTRIBUTION SYSTEMS | 4 | | 20,477 | 19,087 | | | 41,233 | U | 11-108 | |
| 115 | 63719A SPECIAL PURPOSE DETECTORS | 4 | | | | | | 564 | U | --- | |
| 116 | 63721A CHEMICAL DEFENSE MATERIEL CONCEPTS | 4 | 14,888 | 21,231 | 20,476 | | | 16,956 | U | 11-113 | |
| 117 | 63723A TACTICAL AUTOMATION | 4 | 8,964 | 12,075 | 22,379 | | | 27,182 | U | 11-129 | |
| 118 | 63726A COMBAT SUPPORT EQUIPMENT | 4 | 7,528 | 6,032 | 6,824 | | | 8,303 | U | 11-140 | |
| 119 | 63730A TACTICAL SURVEILLANCE SYSTEM | 4 | 11,720 | 10,933 | | | | | | 11-146 | |
| 120 | 63737A ANTI-RADIATION MSI COUNTER MEASURES | 4 | 4,540 | 4,622 | | | | | | 11-150 | |
| 121 | 63740A DIV AIR DEFENSE COMD/CNTRL | 4 | 3,000 | 14,095 | 13,378 | | | 12,562 | U | 11-156 | |
| 122 | 63745A TAC ELECTRONIC SPT MEASURE SYS | 4 | 15,030 | 12,576 | | | | | | 11-163 | |
| 123 | 63746A SINGLE CHANNEL GRD/ADM RADIO SUB-SYS | 4 | 20,475 | 15,714 | 15,526 | | | 9,135 | U | 11-174 | |
| 124 | 63755A TAC ELEC C/M SYS | 4 | 9,359 | 8,467 | | | | | | 11-183 | |
| 125 | 64201A AIRCRAFT AVIONICS | 4 | 1,748 | | | | | | U | --- | |
| 126 | 64202A AIRCRAFT WEAPONS | 4 | 6,403 | 5,130 | 3,568 | | | 729 | U | 11-198 | |
| 127 | 64203A AERIAL SCOUT | 4 | 7,450 | | | | | | U | --- | |
| 128 | 64204A AIR MOBILITY SUPPORT EQUIPMENT | 4 | 250 | 1,187 | 3,064 | | | 3,958 | U | 11-202 | |
| 129 | 64206A UH-60A BLACK HAWK | 4 | 2,259 | 5,046 | 4,242 | | | 3,110 | U | 11-208 | |

DEPARTMENT OF THE ARMY
FY 1982 R D I + E PROGRAM
APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

TABLE R-1

| PROGRAM LINE ELEMENT NO | ITEM NOMENCLATURE | ACT | THOUSANDS OF DOLLARS | | | | DESCRIPTIVE SUMMARY PAGE NUMBER |
|----------------------------------|--|-----|----------------------|---------|---------|-----------|---------------------------------------|
| | | | FY 1980 | FY 1981 | FY 1982 | FY 1983 C | |
| 130 | 64207A ADVANCED ATTACK HELICOPTER | 4 | 176,036 | 172,916 | 94,027 | U | 11-212 |
| 131 | 64212A COBRA TOW | 4 | 945 | 8,515 | 20,074 | 8,561 U | 11-226 |
| 132 | 64213A CH-47 MODERNIZATION | 4 | 22,480 | 576 | | U | --- |
| 133 | 64215A UH-1 MODERNIZATION | 4 | 200 | | | U | 11-231 |
| 134 | 64216A AIRCRAFT PROPULSION SYSTEMS | 4 | | | | 11,772 U | --- |
| 135 | 64217A SYNTHETIC FLIGHT TRAINING SYSTEMS | 4 | 1,098 | | 2,380 | 5,160 U | 11-232 |
| 136 | 64218A AIRBORNE EQUIP DEVELOPMENT | 4 | 823 | 2,533 | 3,184 | 4,656 U | 11-236 |
| 137 | 64220A ARMY HELICOPTER IMPROVEMENT PROG | 4 | | 25,939 | 39,373 | 45,876 U | 11-240 |
| 138 | 64221A SURVEILLANCE SYSTEM | 4 | | | 4,000 | 13,200 U | 11-245 |
| 139 | 64306A STINGER | 4 | 18,827 | 5,900 | 4,255 | 4,566 U | 11-254 |
| 140 | 64307A PATRIOT (CAN-D) | 4 | 128,716 | 51,658 | 32,618 | 32,960 U | 11-267 |
| 141 | 64308A PRECISION LASER DESIGNATOR | 4 | 3,600 | | | U | --- |
| 142 | 64309A ROI AND | 4 | 11,299 | 12,758 | | 12,439 U | 11-293 |
| 143 | 64310A HELIBORNE MISSILE HELIFIRE | 4 | 61,000 | 45,002 | 24,791 | 19,671 U | 11-300 |
| 144 | 64311A PERSHING II | 4 | 145,765 | 147,378 | 154,107 | 106,895 U | 11-319 |
| 145 | 64313A GRASS BLADE | 4 | 30,215 | 36,125 | 21,342 | 10,603 U | 11-333 |
| 146 | 64314A GENERAL SUPPORT ROCKET SYS | 4 | | 64,893 | 36,038 | 17,330 U | 11-336 |
| 147 | 64316A FIRE AND FORGET HELIFIRE | 4 | | 12,510 | 27,723 | 61,117 U | 11-354 |
| 148 | 64318A DIVISION AIR DEFENSE GUN | 4 | 25,719 | 65,203 | 30,649 | U | 11-355 |
| 149 | 64321A JOINT TACTICAL FUSION PROGRAM | 4 | | 10,260 | 7,699 | 39,430 U | 11-356 |
| 150 | 64601A INFANTRY SUPPORT WEAPONS | 4 | 4,546 | 3,910 | 11,973 | 6,183 U | 11-361 |
| 151 | 64602A WEAPONS AND AMMUNITION (H) | 4 | 1,841 | | | U | --- |
| 152 | 64603A NUCLEAR MUNITIONS | 4 | 23,077 | 11,339 | | | 11-370 |

DEPARTMENT OF THE ARMY
FY 1982 RDT + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

| PROGRAM LINE ELEMENT NO | ITEM NOMENCLATURE | ACT | FY 1980 | FY 1981 | FY 1982 | THOUSANDS OF DOLLARS | | DESCRIPTIVE SUMMARY PAGE NUMBER |
|----------------------------------|---|-----|---------|---------|---------|----------------------|----------|---------------------------------------|
| | | | | | | FY 1983 C | E | |
| 153 | 64606A EXPLOSIVE DEMOLITIONS (H) | 4 | 600 | | | | U | --- |
| 154 | 64608A ARMY SMALL ARMS PROGRAM | 4 | 1,405 | | 400 | | 100 U | 11-385 |
| 155 | 64609A COMBAT SUPPORT SYSTEMS | 4 | 1,297 | 541 | 3,102 | | 2,231 U | 11-389 |
| 156 | 64610A LETHAL CHEMICAL MUNITIONS | 4 | 1,060 | | 2,219 | | 1,583 U | 11-393 |
| 157 | 64612A COUNTERRIFLE AND BARRIERS | 4 | 3,008 | 1,705 | 3,001 | | 5,221 U | 11-398 |
| 158 | 64614A FLD ARTY WPNS/AMMO (155MM) (H) | 4 | 6,213 | | | | U | --- |
| 159 | 64616A FIGHTING VEHICLE SYS | 4 | 24,637 | 42,130 | 57,805 | | 15,391 U | 11-405 |
| 160 | 64617A VEH RAPID FIRE WPN SYSTEM-BUSHMASTER | 4 | 4,102 | | | | U | --- |
| 161 | 64619A LANDMINE WARFARE | 4 | 8,742 | 9,512 | 8,310 | | 9,942 U | 11-420 |
| 162 | 64620A TANK SYSTEMS | 4 | 51,724 | 51,553 | 29,063 | | 13,602 U | 11-428 |
| 163 | 64621A COPPERHEAD | 4 | 9,025 | 6,061 | 3,302 | | 2,077 U | 11-441 |
| 164 | 64623A VIPER | 4 | 10,337 | 5,779 | | | U | --- |
| 165 | 64624A HIGH MOBILITY MULTI-PURPOSE VEHICLE | 4 | 1,300 | 2,717 | 3,074 | | 2,810 U | 11-450 |
| 166 | 64626A FIRE INTEGRATION SFT TEAM VEH | 4 | 7,720 | 3,215 | 9,806 | | 7,070 U | 11-455 |
| 167 | 64628A INDIRECT FIRE TRAINING MUNITIONS | 4 | 1,061 | 533 | 1,388 | | 1,411 U | 11-460 |
| 168 | 64630A TANK GUN COOPERATIVE DEVELOPMENT | 4 | 40,226 | 62,051 | 11,347 | | 14,219 U | 11-464 |
| 169 | 64631A FLD ARTY AMMUNITION | 4 | | 1,613 | 1,403 | | 7,101 U | 11-481 |
| 170 | 64632A 105MM TANK AMMUNITION | 4 | | 5,717 | 5,797 | | 4,556 U | 11-486 |
| 171 | 64701A COR-1 ENGINEERING DEV | 4 | 5,453 | 1,729 | 9,152 | | 13,918 U | 111-1 |
| 172 | 64702A JOINT TACTICAL INFO DISTRIBUTION SYSTEMS | 4 | | | 16,222 | | 14,882 U | 111-9 |
| 173 | 64703A UNATTENDED GROUND SENSORS | 4 | 3,663 | 3,618 | | | U | --- |
| 174 | 64705A MODULAR INTEGRATED COMM AND NAVIGATION SYS | 4 | | | 18,000 | | 6,400 U | 111-15 |
| 175 | 64706A RADIOLOGICAL DEFENSE EQUIPMENT | 4 | 515 | 230 | 312 | | 147 U | 111-19 |

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY
FY 1982 RDT & E PROGRAM

EXHIBIT R-1

DATE: 1 JUN 1981

| LINE ELEMENT NO | PROGRAM ELEMENT NO | ITEM NOMENCLATURE | UNIT | FY 1980 | FY 1981 | FY 1982 | THOUSANDS OF DOLLARS | FY 1983 C | DESCRIPTIVE SUMMARY PAGE NUMBER |
|-----------------------|--------------------------|--|------|---------|---------|---------|-------------------------|--------------|---------------------------------------|
| | | | | | | | | | |
| 176 | 64709A | IDENTIFICATION FRIEND OR FOE (E) | 4 | 900 | 3,010 | 2,473 | 5,242 | 0 | 111-24 |
| 177 | 64710A | NIGHT VISION DEVICES | 4 | 3,000 | 5,778 | 5,434 | 5,493 | 0 | 111-28 |
| 178 | 64711A | AIR CORVIEW SELF-PROTECTION SYS | 4 | 6,968 | 11,574 | 16,445 | 21,163 | 0 | 111-32 |
| 179 | 64712A | TACTICAL C3 SYSTEMS ENGINEERING | 4 | 3,984 | 10,692 | 9,197 | 19,578 | 0 | 111-47 |
| 180 | 64713A | COMBAT FLEEING, CLOTHING AND EQUIPMENT | 4 | | 2,537 | 3,593 | 4,207 | 0 | 111-61 |
| 181 | 64714A | TACTICAL ELECTRICAL POWER SOURCES | 4 | 4,400 | 5,322 | 2,172 | 1,636 | 0 | 111-66 |
| 182 | 64716A | MAPPING AND GEOGRAPHY | 4 | 40 | | | | 0 | --- |
| 183 | 64717A | GENERAL COMBAT SUPPORT | 4 | 6,903 | 11,350 | 12,231 | 14,531 | 0 | 111-71 |
| 184 | 64718A | PHYSICAL SECURITY | 4 | 2,362 | 5,872 | 5,882 | 6,213 | 0 | 111-88 |
| 185 | 64723A | SPECIAL PURPOSE DETECTORS | 4 | 150 | 147 | | | 0 | --- |
| 186 | 64724A | PHIOLOGICAL DEFENSE MATERIEL | 4 | 4,950 | 2,701 | 1,056 | | 0 | 111-94 |
| 187 | 64725A | CHEMICAL DEFENSE MATERIEL | 4 | 17,107 | 17,059 | 38,555 | 43,095 | 0 | 111-99 |
| 188 | 64727A | COMMAND AND CONTROL | 4 | 21,425 | 27,531 | 15,356 | 16,560 | 0 | 111-113 |
| 189 | 64728A | COUNTER MORTAR RADAR | 4 | 1,100 | | | | 0 | --- |
| 190 | 64730A | NON TFL / PHIOLOGICAL VEHICLES | 4 | 49,341 | 51,670 | 59,513 | 34,329 | 0 | 111-134 |
| 191 | 64731A | COUNTER BATTERY RADAR | 4 | 3,147 | | | | 0 | --- |
| 192 | 64740A | TACTICAL SURVEILLANCE SYSTEM | 4 | 2,251 | 3,432 | | | | 111-151 |
| 193 | 64745A | TAC ELECTRONIC SPT MEASURE SYS | 4 | 12,129 | 9,280 | | | | 111-155 |
| 194 | 64746A | AUTOMATIC TEST SUPPORT SYSTEMS | 4 | | | 5,097 | 9,016 | 0 | 111-160 |
| 195 | 64748A | STANDARD TARGET ACQUISITION SYSTEM | 4 | 64,585 | 55,375 | 71,775 | 79,240 | 0 | 111-163 |
| 196 | 64750A | TAC ILEC C/H SYS | 4 | 25,516 | 4,277 | | | | 111-176 |
| 197 | 64776A | NAVSTAR GLOBAL POS SYS (USER EO) | 4 | 10,455 | | | | 0 | --- |

DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL. ARMY

DATE: 15 JAN 1931

| PROGRAM LINE NO | ITEM NOMENCLATURE | A.I. | FY 1930 | FY 1931 | FY 1932 | FY 1933 | DESCRIPTIVE SUMMARY PAGE NUMBER |
|-----------------------|---|------|-----------|-----------|-----------|-----------|---------------------------------------|
| 198 | 61779A JT INTEROPERABILITY TAC COND/CHTR. | 4 | 24,963 | 21,522 | 31,234 | 20,563 U | 111-185 |
| 199 | 63710A JOINT CB CONTACT POINT AND TEST | 4 | 624 | 729 | 1,428 | 1,423 U | 111-204 |
| 200 | 23724A HV ANTI-TANK ASSAULT WPN SYS (TOW) | 4 | 26,187 | 20,574 | 6,721 | U | 111-209 |
| 201 | 23726A ADV FIELD ARTY TAC DATA SYS | 4 | | 3,550 | 6,079 | 12,165 U | 111-220 |
| 202 | 23730A CHAPPARAL | 4 | 6,062 | 23,172 | 20,074 | 14,617 U | 111-227 |
| 203 | 23731A SAM BAWK BAWK IFF PROG | 4 | 9,305 | 7,432 | 30,156 | 35,607 U | 111-245 |
| 204 | 23734A LANCE (NUL) WARHEAD | 4 | 1,038 | 1,135 | | U | --- |
| 205 | 23735A COMBAT VEHICLE IMPROVE PROG | 4 | 4,704 | 10,709 | 12,735 | 27,661 U | 111-256 |
| 206 | 23739A AN-TSO-73 MODIFICATIONS | 4 | | 1,245 | 542 | U | 111-267 |
| 207 | 23740A FORCE LEVEL : MANEUVER CTRL SYSTEM SIGMA | 4 | | 5,000 | 15,259 | 44,515 U | 111-271 |
| 208 | 23741A PROD INFR VULCAN AIR DEF SYS | 4 | | 9,340 | | U | --- |
| 209 | 28010A JT TACTICAL COMM PROG | 4 | 31,705 | 33,822 | 49,944 | 71,738 U | 111-276 |
| 210 | 33142A SATCOM GROUND ENVIRONMENT | 4 | | 25,742 | 37,538 | 50,128 U | 111-313 |
| 211 | 33143A EUCOM C3 SYSTEMS | 4 | | 2,035 | 2,069 | 2,067 U | 111-331 |
| | TACTICAL PROGRAMS | | 1,470,399 | 1,527,623 | 1,614,322 | 1,637,079 | |
| 212 | 63712A MAPPING AND GEODESY | 5 | | | 1,062 | U | 111-335 |
| 213 | 64201A AIRCRAFT AVIONICS | 5 | | 2,762 | 7,637 | 13,085 U | 111-340 |
| 214 | 64716A MAPPING AND GEODESY | 5 | | 10 | 100 | 3,611 U | 111-344 |
| 215 | 64778A NAVSTAR GLOBAL POS SYS (USPR EO) | 5 | | 18,056 | 21,426 | 14,203 U | 111-350 |
| 216 | 12814A SPECIAL PROGRAM | 5 | | | | U | 111-359 |
| 217 | 31022A SCIENTIFIC AND TECH INTEL'IGENCE | 5 | 1,999 | | | U | --- |
| 218 | 31307A FOREIGN SCIENCE TECH CENTER | 5 | | | | | 111-360 |
| 219 | 33111A STRATEGIC ARMS COMMUNICATIONS | 5 | 561 | 645 | 604 | 834 U | 111-365 |

DEPARTMENT OF THE ARMY
FY 1982 Budget Program

APPROPRIATION: 2000 A RESEARCH DEVELOPMENT TEST & EVAL. ACTIVITY

| PROGRAM LINE ITEM NO. NUMBER | ITEM NOMENCLATURE | ACT | FUNDING | | | | DATE | DOLLARS | | S E C | DESCRIPTIVE SUMMARY PAGE NUMBER |
|------------------------------------|--|-----|---------|---------|---------|---------|------|---------|---------|-------------|---------------------------------------|
| | | | FY 1990 | FY 1991 | FY 1992 | FY 1993 | | FY 1992 | FY 1993 | | |
| 220 | 33126A LONG-HAUL COMMUNICATIONS (DCS) | 5 | 1,977 | 7,565 | 7,667 | 6,923 | U | | | U | 111-369 |
| 221 | 33142A SATCON: GROUND ENVIRONMENT | 5 | 22,080 | | | | U | | | U | --- |
| 222 | 33151A WORLDWIDE MIL CMD AND CONTROL SYSTEMS (WMCCS) | 5 | | | | | U | | | U | --- |
| 223 | 33101A COMMUNICATIONS SECURITY | 5 | | | | | U | | | U | --- |
| | INTELLIGENCE AND COMMUNICATIONS | | 32,504 | 37,412 | 50,318 | 92,525 | | | | | 111-373 |
| 224 | 63718A EW VULNERABILITY/SUSCEPTIBILITY | 6 | 17,680 | 21,556 | | | U | | | U | 111-377 |
| 225 | 63739A NON SYSTEM TRAINING DEVICES | 6 | 1,000 | 2,500 | 1,412 | 7,209 | U | | | U | 111-395 |
| 226 | 63747A SOLDIER SUPPORT/SURVIVABILITY | 6 | 2,119 | | | | U | | | U | --- |
| 227 | 64268A ACFT ENGINE COMPONENT IMPROVE PROG | 6 | 8,700 | 8,510 | 11,842 | 12,223 | U | | | U | 111-400 |
| 228 | 64713A COMBAT FEEDING, CLOTHING AND EQUIPMENT | 6 | 1,613 | | | | U | | | U | --- |
| 229 | 64711A NON-SYSTEM ENG DEVICES ENGR | 6 | 9,554 | 11,812 | 13,245 | 8,193 | U | | | U | 111-404 |
| 230 | 64726A METEOROLOGICAL EQUIPMENT SYSTEMS | 6 | 6,075 | 2,687 | 2,145 | 2,223 | U | | | U | 111-414 |
| 231 | 65102A TRACK STUDIES AND ANALYSIS | 6 | 2,200 | 1,525 | 1,765 | 2,008 | U | | | U | 111-422 |
| 232 | 65201A AVIATION ENGINEERING FLIGHT ACTIVITY | 6 | 1,251 | 4,319 | 5,497 | 6,052 | U | | | U | 111-427 |
| 233 | 65201A AVIATION ENGINEERING FLIGHT ACTIVITY | 6 | 98,141 | 13,332 | 143,765 | 153,916 | U | | | U | 111-431 |
| 234 | 65702A SUPPORT OF DEVE OPMENT TESTING | 6 | 23,220 | 50,492 | 37,281 | 42,670 | U | | | U | 111-436 |
| 235 | 65705A MATERIAL SYSTEMS ANALYSIS | 6 | 10,496 | 9,911 | 14,603 | 15,143 | U | | | U | 111-452 |
| 236 | 65707A SUPPORT OF OPERATIONAL TESTING | 6 | 23,700 | | | | U | | | U | --- |
| 237 | 65709A EXPLOITATION OF FOREIGN ITEMS | 6 | 3,212 | 1,522 | | | U | | | U | 111-457 |
| 238 | 65712A SUPPORT OF OPERATIONAL TESTING | 6 | 11,613 | 39,016 | 14,708 | 52,921 | U | | | U | 111-462 |
| 239 | 65715A DEFENSE SYSTEMS MANAGEMENT COLLEGE | 5 | | 1,157 | 207 | 207 | U | | | U | 111-482 |
| 240 | 65601A PROGRAM MGMT ACTIVITIES | 6 | 46,806 | 52,108 | 61,631 | 65,530 | U | | | U | 111-486 |
| 241 | 65707A INTL COMPARATIVE RESEARCH AND DEV | 6 | 500 | 645 | 500 | 1,009 | U | | | U | 111-495 |

DEPARTMENT OF THE ARMY
FY 1982 RDT + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2030 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

| PROGRAM LINE ITEM NO | ITEM DESCRIPTION | ACI | FY 1980 | FY 1981 | FY 1982 | THRU FISCAL YEAR OF DOLLARS | | E | C | S | DESCRIPTIVE SUMMARY PAGE NUMBER |
|--|--|-----|-----------|-----------|-----------|-----------------------------|--|-----------|---|---|---------------------------------------|
| | | | | | | | | | | | |
| 242 | 65803A TECHNICAL INFO ACTIVITIES | 6 | 3,515 | 2,134 | 4,720 | | | 5,379 | U | | III-499 |
| 243 | 65804A DALCOM MAJOR RANGE/TEST FACIL | 6 | 161,200 | 117,211 | 21,340 | | | 310,215 | U | | III-505 |
| 244 | 65805A DOD MUNITIONS EFFECT/EXCLUSIVE SAFETY STAND | 6 | 5,201 | 6,354 | 1,240 | | | 8,510 | U | | III-529 |
| 245 | 65806A DOD HIGH ENERGY LASER SYSTEMS TEST FAC | 6 | | 14,310 | 42,137 | | | 26,901 | U | | III-539 |
| 246 | 65807A PROBABILITY INVESTMENT FUNDING | 6 | | | | | | 1,500 | U | | --- |
| 247 | 65808A INSTL AUDIOTAPING SPT (R/D) | 6 | | | 2,310 | | | 2,350 | U | | III-546 |
| 248 | 65809A MGT HQ (RESEARCH/DEVELOPMENT) | 5 | 26,901 | 30,642 | 39,640 | | | 41,807 | U | | III-548 |
| | DUPLEX FLIDE MISION SFT, RPT | | 423,451 | 511,111 | 737,748 | | | 20,116 | | | |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY | | | 2,245,131 | 2,066,757 | 3,777,204 | | | 5,171,013 | | | |

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY PERFORMER DISTRIBUTION (\$ in Thousands)

Section 4

Appropriation: Research, Development, Test and Evaluation, Army

| | | Total Obligational Authority | | |
|----|--|------------------------------|-----------|-----------|
| | | FY 1980 | FY 1981 | FY 1982 |
| | | | | FY 1983 |
| 1. | For operation of installations of the reporting DOD Component | | | |
| | Government operated | 1,050,294 | 1,239,841 | 1,427,703 |
| 2. | For operation of installations of the reporting DOD Component | | | |
| | Contractor operated | 59,068 | 67,100 | 77,001 |
| 3. | For contracts directly in support of work actually performed at installations of the reporting DOD Component | 282,262 | 248,841 | 262,872 |
| 4. | For work assigned to other Department of defense activities | 146,211 | 161,869 | 184,307 |
| 5. | For work assigned to activities of other Government agencies | 21,100 | 26,025 | 19,951 |
| 6. | For work performed by industrial contractors ("profit" organizations) | 1,199,216 | 1,232,573 | 1,480,980 |
| 7. | For work performed by educational institutions | | | |
| | a. Designated Fed Contract Res Centers | 24,470 | 30,243 | 33,278 |
| | b. Other Institutions | 43,164 | 50,713 | 62,827 |
| 8. | For work performed by other "non-profit" organizations | 7,487 | 8,592 | 10,041 |
| | a. Designated Fed Contract Res Centers | 13,159 | 21,760 | 18,240 |
| | b. Other Institutions | | | |
| 9. | Total Research, Development, Test and Evaluation, Army Appropriation | 2,846,431 | 3,086,757 | 3,577,200 |
| | | | | 4,172,051 |

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY INSTALLATION ANALYSIS - IN-HOUSE

Section 4

This installation analysis indicates the resources of dollars and manpower utilized by Army installations in the accomplishment of the in-house research, development, test and evaluation effort, including contractor operated installations, under the management control of the Army. Installations reported include both installations classified as research, development, or test installations and research, development, or test units located at multi-mission installations. Funds being reported cover both direct costs and indirect or support costs. These funds are a part of project costs shown in the budget for the various projects. The amounts reflected under the category "RDTE Funds" include funds received directly through command channels, and reimbursable RDTE effort performed for other Army activities and other Department of Defense agencies. "All Other Funds" reflect the in-house effort at multi-mission installations for other than Research, Development, Test and Evaluation, Military Construction and Military Personnel costs. Military Personnel costs reflect those military personnel assigned to RDTE activities and other military personnel located at the installation in support of non-RDTE activities at multi-mission posts.

The personnel reflected includes spaces assigned and charged directly to the RDTE appropriation as reflected in the personnel summary and spaces assigned to Army Industrial Fund installations operated with RDTE funds. Contractor personnel shown are engaged in direct support or operation of Army installations.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

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Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

| TOA (\$ in Thousands) | | | | PERSONNEL (Man-Years) | | | | | | | | | | | | | | |
|---|----|-------------|------------|-----------------------|------|-----------------|-----------|------------|--------|---------------|-----------|-----------------|------|-----------|------------|-------|------|--|
| Installation and Location Army Industrial Fund Installations 1. | FY | RDTE Funds | | | | All Other Funds | Sub-Total | Mil. Pers. | | Civil Service | | Contractor Paid | | Pers. | | Total | | |
| | | Mgmt Bureau | Other Army | Other DOD | RDTE | | | Other | Total | Paid | From Army | Other RDTE | Paid | From RDTE | Other Work | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| Abbeey | 80 | 53465 | 14776 | 1878 | 793 | 70912 | 1480 | 18 | 72410 | 1936 | 268 | - | 34 | - | 81 | 1 | 2320 | |
| Proving | 81 | 54968 | 15300 | 1775 | 800 | 72843 | 1843 | 21 | 74707 | 2316 | 268 | - | 34 | - | 87 | 1 | 2706 | |
| Ground, Aberdeen, Maryland | 82 | 68363 | 15600 | 1775 | 800 | 86538 | 1786 | 21 | 88345 | 2331 | 268 | - | - | - | 85 | 1 | 2685 | |
| | 83 | 73412 | 16100 | 1775 | 800 | 92087 | 1691 | 21 | 93799 | 2415 | 268 | - | - | - | 81 | 1 | 2765 | |
| 2. | | | | | | | | | | | | | | | | | | |
| Armament Research and Development, Command, Dover, New Jersey | 80 | 55418 | 35931 | 11478 | - | 102827 | 1516 | 238 | 104581 | 2823 | 660 | - | - | - | 83 | 13 | 3579 | |
| | 81 | 57594 | 33052 | 9910 | - | 100556 | 1822 | - | 102378 | 2641 | 660 | - | - | - | 86 | - | 3387 | |
| | 82 | 70888 | 32850 | 7700 | - | 111438 | 1555 | - | 112993 | 2765 | 660 | - | - | - | 74 | - | 3499 | |
| | 83 | 77687 | 32700 | 7700 | - | 118087 | 1148 | 397 | 119632 | 2765 | 660 | - | - | - | 55 | 19 | 3499 | |
| 3. | | | | | | | | | | | | | | | | | | |
| Army Materiel and Mechanics Research Center, Watertown, Massachusetts | 80 | 13042 | 5276 | 465 | 2235 | 20978 | 311 | - | 21289 | 389 | 57 | 158 | 51 | - | 17 | - | 675 | |
| | 81 | 13822 | 5529 | 553 | 2350 | 22251 | 360 | - | 22614 | 389 | 57 | 158 | 51 | - | 17 | - | 671 | |
| | 82 | 15880 | 6352 | 635 | 2700 | 25567 | 357 | - | 25924 | 389 | 57 | 158 | 51 | - | 17 | - | 656 | |
| | 83 | 20254 | 8102 | 810 | 3443 | 32609 | 355 | - | 32964 | 389 | 57 | 158 | 51 | - | 17 | - | 656 | |

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | | | | | |
|---------------------------|--|-----------------------|-------------|------------|-----------|-------------|------------|------|-------|-------|------|-----------------------|-------|------|------|-------|------------|------|-------|------|------|-------|
| | | RDTE Funds | | | | | Maj. Pers. | | | | | Civil Service | | | | | Contractor | | | | | |
| | | | | | | | | | | | | Paid | | | | | Paid | | | | | Paid |
| | | FY | Mgmt Bureau | Other Army | Other DOD | Other Funds | Sub-Total | RDTE | Other | Total | Army | From | Other | RDTE | From | Other | RDTE | From | Other | RDTE | From | Other |
| | | | | | | | | | | | | | | | | | | | | | | |
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1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

TOT (\$ in Thousands)

| Installation and Location | | TOA (\$ in Thousands) | | | | PERSONNEL (in Years) | | | | | | | | | | | | | |
|---------------------------|---|-----------------------|------------|-----------|-------|----------------------|-------|-----------|--------|------------|-----------|---------------|-----------|---------------|------------|-----------|---------------|------------|-------|
| | | RDTE Funds | | | | All Other Funds | | Sub-Total | | Mil. Pers. | | Civil Service | | Contracted | | | | Total | |
| | | Mgmt Bureau | Other Army | Other DOD | | Other 1/ | | RTE | Other | Total | From Army | From Other | From RDTE | From Civilian | From Other | From RDTE | From Civilian | From Other | Total |
| 80 | Aberdeen | 51172 | 23994 | 197 | 67750 | 143113 | 13076 | - | 155189 | 1554 | - | 2194 | 82 | 274 | 805 | - | 4859 | - | 5131 |
| 81 | Proving | 86611 | 16339 | 50 | 76631 | 179631 | 13959 | - | 193590 | 1378 | - | 2487 | 192 | 462 | 812 | - | 5131 | - | 5258 |
| 82 | Ground, Aberdeen, Maryland | 91667 | 18118 | 80 | 80313 | 190178 | 13975 | - | 204153 | 1241 | - | 2457 | 264 | 584 | 812 | - | 5310 | - | 5310 |
| 83 | | 98909 | 20102 | 65 | 89784 | 208860 | 13991 | - | 222851 | 1241 | - | 2457 | 278 | 522 | 812 | - | | - | |
| 8. | | | | | | | | | | | | | | | | | | | |
| 80 | Acromedical Research | 2916 | 582 | - | 1 | 3499 | 1283 | - | 4782 | 74 | - | - | - | - | 77 | - | 151 | - | 151 |
| 81 | | 2957 | - | - | - | 2957 | 1480 | - | 4437 | 65 | - | - | - | - | 77 | - | 142 | - | 142 |
| 82 | Laboratory, Ft. Rucker, Alabama | 3449 | - | - | - | 3449 | 1474 | - | 4923 | 65 | - | - | - | - | 77 | - | 142 | - | 142 |
| 83 | | 3687 | - | - | - | 3687 | 1471 | - | 5158 | 65 | - | - | - | - | 77 | - | 142 | - | 142 |
| 9. | | | | | | | | | | | | | | | | | | | |
| 80 | Air Defense Board, Ft. Bliss, Texas | 2391 | 1411 | - | 112 | 3914 | 1857 | - | 5771 | 85 | - | - | - | - | 117 | - | 202 | - | 202 |
| 81 | | 3043 | 92 | - | 309 | 3444 | 2138 | - | 5582 | 85 | - | - | - | - | 117 | - | 202 | - | 202 |
| 82 | | 2520 | 32 | - | 95 | 2647 | 2133 | - | 4780 | 85 | - | - | - | - | 117 | - | 202 | - | 202 |
| 83 | | 2766 | 77 | - | 35 | 2878 | 2130 | - | 5008 | 85 | - | - | - | - | 117 | - | 202 | - | 202 |
| 10. | | | | | | | | | | | | | | | | | | | |
| 80 | Airborne Board, Ft. Bragg, North Carolina | 1128 | 39 | 23 | 224 | 1414 | 1387 | - | 2801 | 40 | - | - | - | - | 87 | - | 127 | - | 127 |
| 81 | | 1190 | - | - | 149 | 1339 | 1777 | - | 3116 | 39 | - | - | - | - | 97 | - | 136 | - | 136 |
| 82 | | 1000 | - | - | 220 | 1220 | 1774 | - | 2994 | 40 | - | - | - | - | 97 | - | 137 | - | 137 |
| 83 | | 1000 | - | - | 220 | 1220 | 1771 | - | 2991 | 40 | - | - | - | - | 97 | - | 137 | - | 137 |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Section 6 (Cont'd)

| Installation and Location Army, Navy, Air Force, and Coast Guard Installations | | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Non Years) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | Army | Navy | Air Force | Coast Guard | Other | Total | RDTE | Other | Total | Army | Civil Service | Contractor | Contractor | Contractor | Contractor | Contractor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| TDA (\$ in Thousands) | | | | PERSONNEL (Man Years) | | | | | | | | | | | | | | | |
|---|----|-------------|------------|-----------------------|-----------------|-----------|------------|-------|-------|---------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| Installation and Location | FY | RDTE Funds | | | All Other Funds | Sub-Total | Mil. Pers. | | Total | Civil Service | | | | | | | | | |
| | | Regd Bureau | Other Army | Other DOD | | | RDTE | Other | | Paid | | From | | Paid | | | | | |
| | | | | | | | | | | From Army | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other |
| 14. Army Non-Installation Fund Installations | | | | | | | | | | | | | | | | | | | |
| Army Engineer | 80 | 5294 | 616 | - | 179 | 6089 | - | 828 | 6917 | 100 | - | - | 7 | - | - | - | - | 55 | 162 |
| Flight Activity, Edwards | 81 | 4591 | 600 | - | 90 | 5281 | - | 1145 | 6426 | 100 | - | - | 8 | - | - | - | - | 66 | 174 |
| | 82 | 5199 | 800 | - | - | 5999 | - | 1145 | 7144 | 100 | - | - | 8 | - | - | - | - | 66 | 174 |
| Air Force Base, California | 83 | 5759 | 750 | - | - | 6509 | - | 1145 | 7654 | 100 | - | - | 8 | - | - | - | - | 66 | 174 |
| 15. Army Institute of Dental Research, Washington, DC | 80 | 1023 | - | - | 61 | 1084 | 1004 | 339 | 2427 | 22 | - | 2 | - | - | 60 | 20 | 104 | 106 | |
| | 81 | 1213 | - | - | - | 1213 | 1160 | 392 | 2765 | 25 | - | 2 | - | - | 60 | 20 | 107 | 107 | |
| | 82 | 1418 | - | - | - | 1418 | 1155 | 390 | 2963 | 25 | - | 2 | - | - | 60 | 20 | 107 | 107 | |
| | 83 | 1483 | - | - | - | 1483 | 1151 | 388 | 3022 | 25 | - | 2 | - | - | 60 | 20 | 107 | 107 | |
| 16. Army Materiel Development & Readiness Command, Alexandria, Virginia | 80 | 4618 | - | - | - | 4618 | 588 | - | 5206 | 115 | - | - | - | - | 39 | - | 154 | 157 | |
| | 81 | 5786 | - | - | - | 5786 | 676 | - | 6462 | 118 | - | - | - | - | 39 | - | 157 | 157 | |
| | 82 | 5943 | - | - | - | 5943 | 676 | - | 6619 | 118 | - | - | - | - | 39 | - | 157 | 157 | |
| | 83 | 6914 | - | - | - | 6914 | 676 | - | 7590 | 118 | - | - | - | - | 39 | - | 157 | 157 | |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| | | TOA (\$ in Thousands) | | | | PERSONNEL (Man-Years) | | | | | | | | | |
|--|--|-----------------------|--|--|--|-----------------------|--|--|--|-----------------|--|--|--|-----------------|--|
| | | | | | | Civil Service | | | | Contractor | | | | Mil. Pers. | |
| | | | | | | Paid | | | | Paid | | | | In | |
| | | | | | | From Army | | | | From Other RDTE | | | | From Other RDTE | |
| | | | | | | RDTE | | | | RDTE | | | | Funds Work | |
| | | | | | | Total | | | | Total | | | | Other | |
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1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| | | FOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man Years) | | | | | | | | | |
|--|----|-----------------------|-------|------|-----|-----------------|-------|-----------|------|------------|-------|-----------------------|------|-------|------|------------|------|-------|------|------------|-------|
| | | RDTF Funds | | | | All Other Funds | | Sub-Total | | MIL. Pers. | | Civil Service | | | | Contractor | | | | MIL. Pers. | |
| | | Agmt | Other | Army | DOD | Other | | | | RDTF | Other | Paid | From | Other | RDTF | Paid | From | Other | RDTF | From | Other |
| Installation and Location | FY | Bureau | Other | Army | DOD | Other | Total | | | RDTF | Other | Paid | From | Other | RDTF | Paid | From | Other | RDTF | From | Other |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | | | | | |
| 20. | | | | | | | | | | | | | | | | | | | | | |
| Aviation | 80 | 6188 | 418 | - | - | - | 5399 | 12005 | 2198 | 683 | - | - | - | - | - | - | - | - | - | - | - |
| Development | 81 | 7052 | 150 | - | - | - | 5213 | 12415 | 1515 | - | - | - | - | - | - | - | - | - | - | - | - |
| Test Activity, Ft. Rucker, Alabama | 82 | 7248 | 150 | - | - | - | 5613 | 13011 | 1516 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 83 | 7676 | 150 | - | - | - | 5800 | 13626 | 1518 | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | |
| 21. | | | | | | | | | | | | | | | | | | | | | |
| Aviation | 80 | 21149 | 2181 | 76 | - | - | 2987 | 26393 | 683 | 338 | - | 1 | 61 | - | - | - | - | - | - | - | - |
| Research and Development | 81 | 25841 | 2344 | 51 | - | - | 3696 | 31932 | 784 | 507 | - | - | 72 | - | - | - | - | - | - | - | - |
| Command, St. Louis, Missouri | 82 | 22432 | 2386 | 56 | - | - | 3540 | 28414 | 786 | 502 | - | - | 75 | - | - | - | - | - | - | - | - |
| | 83 | 23273 | 2539 | 60 | - | - | 3640 | 29512 | 510 | 501 | - | - | 77 | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | |
| 22. | | | | | | | | | | | | | | | | | | | | | |
| Aviation Test Board, Ft. Rucker, Alabama | 80 | 3397 | 817 | - | - | - | - | 4214 | 1254 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 81 | 2325 | - | - | - | - | - | 2325 | 1721 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 82 | 1633 | - | - | - | - | - | 1633 | 1718 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 83 | 1863 | - | - | - | - | - | 1863 | 1716 | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Cont'd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | | | | | | |
|---|----|-----------------------|-------|-------|-----------|-------|-----------------|------|-------|-----|-----------|-----------------------|-------|-------|-------|-----|------------|------|-------|------|-------|-----|-----------|
| | | RDTE Funds | | | | | All Other Funds | | | | | Civil Service | | | | | Contractor | | | | | | |
| | | RDTE | | Other | | | RDTE | | Other | | | RDTE | | Other | | | RDTE | | Other | | | | |
| | | Army | Other | DDO | Sub-Total | Mil. | Pers. | Army | Other | DDO | Sub-Total | Mil. | Pers. | Army | Other | DDO | Sub-Total | Mil. | Pers. | Army | Other | DDO | Sub-Total |
| FY | | | | | | | | | | | | | | | | | | | | | | | |
| 23. | | | | | | | | | | | | | | | | | | | | | | | |
| Avionics Laboratory, Ft. Monmouth, New Jersey | 80 | 13509 | 17984 | 255 | - | 31838 | 228 | 120 | 32186 | 138 | 1 | - | - | - | - | - | 22 | - | 15 | 8 | 384 | | |
| | 81 | 16448 | 19219 | 2000 | - | 37667 | 275 | 138 | 38080 | 341 | 2 | - | - | - | - | - | 23 | - | 16 | 8 | 390 | | |
| | 82 | 17499 | 19843 | 2500 | - | 39842 | 290 | 138 | 40270 | 343 | 2 | - | - | - | - | - | 24 | - | 17 | 8 | 394 | | |
| | 83 | 22364 | 19338 | 1500 | - | 43192 | 289 | 138 | 43619 | 343 | 2 | - | - | - | - | - | 20 | - | 17 | 8 | 390 | | |
| 24. | | | | | | | | | | | | | | | | | | | | | | | |
| Ballistic Missile Defense Advanced Technology Center, Huntsville, Alabama | 80 | 5184 | - | - | - | 5184 | 198 | - | 5382 | 103 | - | - | - | - | - | - | - | - | 3 | - | 111 | | |
| | 81 | 5707 | - | - | - | 5707 | 233 | - | 5940 | 103 | - | - | - | - | - | - | - | - | 8 | - | 111 | | |
| | 82 | 6040 | - | - | - | 6040 | 229 | - | 6269 | 103 | - | - | - | - | - | - | - | - | 8 | - | 111 | | |
| | 83 | 5764 | - | - | - | 6764 | 225 | - | 6989 | 103 | - | - | - | - | - | - | - | - | 8 | - | 111 | | |
| 25. | | | | | | | | | | | | | | | | | | | | | | | |
| Ballistic Missile Defense Program Office, Alexandria, Virginia | 80 | 487 | - | - | - | 487 | 298 | - | 785 | 13 | - | - | - | - | - | - | - | - | 12 | - | 25 | | |
| | 81 | 600 | - | - | - | 600 | 350 | - | 950 | 13 | - | - | - | - | - | - | - | - | 12 | - | 25 | | |
| | 82 | 632 | - | - | - | 632 | 342 | - | 974 | 13 | - | - | - | - | - | - | - | - | 12 | - | 25 | | |
| | 83 | 673 | - | - | - | 673 | 338 | - | 1011 | 13 | - | - | - | - | - | - | - | - | 12 | - | 25 | | |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| Installation and Location | | TOA (\$ in Thousands) | | | | PERSONNEL (Man-Years) | | | | | | | | | | |
|------------------------------------|----|-----------------------|------------|-----------|-----------|-----------------------|-------|----------------|----------------------|----------------------|----------------------|------------|---|------------|-----|-------|
| | | RDTE Funds | | | | All Other Funds | | MIL. Pers. | | Civil Service | | Contractor | | MIL. Pers. | | Total |
| | | Regt Bureau | Other Army | Other DOD | Sub-Total | RDTE | Other | Paid From Army | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | In Work | | | | |
| | | | | | | | | | | | | | | | | |
| FY | | | | | | | | | | | | | | | | |
| 26. | | | | | | | | | | | | | | | | |
| Ballistic Mis- | 80 | 5808 | - | - | - | 5808 | 260 | - | 6068 | 175 | - | - | - | - | 11 | 186 |
| ile Defense | 81 | 8269 | - | - | - | 8269 | 306 | - | 8573 | 175 | - | - | - | - | 11 | 186 |
| Systems | 82 | 10672 | - | - | - | 10672 | 627 | - | 11099 | 200 | - | - | - | - | 23 | 223 |
| Command, | 83 | 11994 | - | - | - | 11994 | 618 | - | 12612 | 224 | - | - | - | - | 23 | 247 |
| Bontsville, Alabama | | | | | | | | | | | | | | | | |
| 27. | | | | | | | | | | | | | | | | |
| Gold Regions | 80 | 4828 | 373 | 156 | 5136 | 9493 | 256 | - | 9749 | 185 | 3 | 78 | - | - | 14 | 280 |
| Research & | 81 | 3985 | 600 | 200 | 5130 | 9915 | 297 | - | 10212 | 185 | 3 | 78 | - | - | 14 | 280 |
| Engineering | 82 | 6480 | 850 | 220 | 5020 | 12570 | 294 | - | 12864 | 185 | 3 | 78 | - | - | 14 | 280 |
| Laboratory, Hanover, New Hampshire | 83 | 7140 | 940 | 240 | 5520 | 13820 | 292 | - | 14112 | 185 | 3 | 78 | - | - | 14 | 280 |
| 28. | | | | | | | | | | | | | | | | |
| Gold Regions | 80 | 4652 | 485 | - | - | 5137 | 4022 | - | 9159 | 22 | - | - | - | - | 268 | 290 |
| Test Center, | 81 | 5256 | 177 | - | - | 5633 | 4615 | - | 10248 | 22 | - | - | - | - | 268 | 290 |
| Ft. Greely, | 82 | 5290 | 391 | - | - | 5681 | 4617 | - | 10298 | 22 | - | - | - | - | 268 | 290 |
| Alaska | 83 | 5799 | 411 | - | - | 6210 | 4622 | - | 10832 | 22 | - | - | - | - | 268 | 290 |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | | | | |
|---|----|-----------------------|------------|-----------|-----------|------------|-----------------|-------|--------|---------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | RDTE Funds | | | | | All Other Funds | | | | | Civil Service | | | | | Contractor | | | | |
| | | RDTE Funds | | | | | All Other Funds | | | | | Civil Service | | | | | Contractor | | | | |
| | | Went Bureau | Other Army | Other DOD | Sub-Total | Mil. Pers. | RDTE | Other | Total | Paid From Army RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE |
| 29. Combined Arms Test Activity, Ft. Hood, Texas | 80 | 209 | - | - | 11720 | 11929 | 29 | - | 11958 | 1 | - | - | - | - | - | - | 129 | 2 | - | - | 132 |
| | 81 | 676 | - | - | 15726 | 16402 | 69 | - | 16471 | 4 | - | - | - | - | - | - | 127 | 4 | - | - | 135 |
| | 82 | 824 | - | - | - | 824 | 69 | - | 893 | 4 | - | - | - | - | - | - | - | 4 | - | - | 8 |
| | 83 | 824 | - | - | - | 824 | 69 | - | 893 | 4 | - | - | - | - | - | - | - | 4 | - | - | 8 |
| 30. Communications and Electronics Board, Ft. Gordon, Georgia | 80 | 1314 | - | - | 115 | 1429 | 989 | - | 2418 | 31 | - | - | - | - | - | - | - | 62 | - | - | 93 |
| | 81 | 1251 | - | - | 180 | 1431 | 1135 | - | 2566 | 31 | - | - | - | - | - | - | - | 62 | - | - | 93 |
| | 82 | 1630 | - | - | 330 | 1760 | 1281 | - | 3041 | 31 | - | - | - | - | - | - | - | 70 | - | - | 101 |
| | 83 | 1072 | - | - | 180 | 1252 | 1281 | - | 2533 | 31 | - | - | - | - | - | - | - | 70 | - | - | 101 |
| 31. Communications Research and Development Command, Ft. Monmouth, New Jersey | 80 | 70906 | 10768 | 77 | 6843 | 88594 | 1163 | 132 | 89889 | 903 | 45 | 99 | 186 | 191 | 78 | 9 | 1511 | 78 | 9 | 1511 | 1511 |
| | 81 | 104510 | 10433 | 237 | 6510 | 121690 | 1321 | 235 | 123246 | 937 | 44 | 104 | 282 | 203 | 77 | 13 | 1660 | 77 | 13 | 1660 | 1660 |
| | 82 | 112254 | 8548 | 173 | 6111 | 127086 | 1323 | 248 | 128657 | 950 | 42 | 101 | 311 | 205 | 77 | 14 | 1700 | 77 | 14 | 1700 | 1700 |
| | 83 | 119029 | 8907 | 173 | 6336 | 156535 | 1338 | 248 | 156171 | 966 | 42 | 107 | 283 | 205 | 78 | 14 | 1675 | 78 | 14 | 1675 | 1675 |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| | | TOA (\$ in Thousands) | | | | PERSONNEL (in Years) | | | | | | | | | |
|---|----|-----------------------|------------|-----------|-------------|----------------------|------------|-------|-------|---------------|-----------|------------|----------|-----------|---------------|
| Installation and Location | FY | RDTE Funds | | | All | | Mil. Pers. | | | Civil Service | | | Contract | | |
| | | Ngmt Bureau | Other Army | Other DOD | Other Funds | Sub-Total | RDTE | Other | Total | Paid | From Army | Other RDTE | Paid | From RDTE | In Other Work |
| | | | | | | | | | | | | | | | |
| 32. Computer Systems Command, Ft. Belvoir, Virginia | 80 | 740 | - | - | - | 740 | 174 | - | 914 | 18 | - | - | - | - | 7 |
| | 81 | 936 | - | - | - | 936 | 205 | - | 1141 | 24 | - | - | - | - | 7 |
| | 82 | 802 | - | - | - | 802 | 171 | - | 973 | 21 | - | - | - | - | 6 |
| | 83 | 805 | - | - | - | 805 | 169 | - | 974 | 21 | - | - | - | - | 6 |
| 33. Construction Engineering Research Laboratory, Champaign, Illinois | 80 | 6222 | 5170 | 452 | 641 | 12485 | 73 | - | 12558 | 182 | - | - | - | - | 4 |
| | 81 | 8100 | 4424 | 432 | 539 | 13495 | 127 | - | 13622 | 182 | - | - | - | - | 6 |
| | 82 | 10142 | 3998 | 390 | 487 | 15017 | 168 | - | 15185 | 182 | - | - | - | - | 8 |
| | 83 | 9245 | 4317 | 421 | 527 | 14510 | 209 | - | 14719 | 182 | - | - | - | - | 10 |
| 34. Corps of Engineer RDTE Headquarters Activities, Washington, DC | 80 | 437 | - | - | - | 437 | 18 | - | 455 | 11 | - | - | - | - | 1 |
| | 81 | 609 | - | - | - | 609 | 21 | - | 630 | 11 | - | - | - | - | 1 |
| | 82 | 665 | - | - | - | 665 | 21 | - | 686 | 11 | - | - | - | - | 1 |
| | 83 | 666 | - | - | - | 666 | 21 | - | 687 | 11 | - | - | - | - | 1 |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IR-HOUSE

Section 4 (Contd)

| Installation and Location | FY | TOA (\$ in Thousands) | | | | PERSONNEL (Plan Years) | | | | | | | | | | | | | | |
|---------------------------|----|-----------------------|-------|------|-------|------------------------|-------|-------|-----------|------------|------------|-----------|------------|------------|------------|-----------|------------|------|-------|-------|
| | | All Other/ Sub- | | | | Civil Service | | | | Contractor | | | | Mil. Pers. | | | | | | |
| | | Funds | | | | Total | | | | Paid | | | | Paid | | | | In | | |
| | | RDTE | Other | DOD | Funds | RDTE | Other | Total | From Army | Other RDTE | From Other | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other | Work | Other | Total |
| 35. | | | | | | | | | | | | | | | | | | | | |
| Dugway | 80 | 16138 | 7706 | 2095 | 293 | 26232 | 2661 | - | 28873 | 624 | 11 | 11 | - | 5 | 10 | 176 | - | - | - | 826 |
| Proving Ground, | 81 | 22648 | 9396 | 1050 | 8 | 33092 | 2686 | - | 35778 | 617 | 11 | 11 | - | 74 | 10 | 156 | - | - | - | 868 |
| Ground, | 82 | 27108 | 10383 | 1100 | 10 | 38601 | 2688 | - | 41289 | 617 | 11 | 11 | - | 253 | 10 | 156 | - | - | - | 1047 |
| Dugway, Utah | 83 | 31366 | 13570 | 1200 | 12 | 46166 | 2690 | - | 48836 | 617 | 11 | 11 | - | 337 | 10 | 156 | - | - | - | 1131 |
| 36. | | | | | | | | | | | | | | | | | | | | |
| Electronic | 80 | 8882 | 5759 | 1053 | 211 | 15905 | 8512 | 2269 | 26686 | 131 | 38 | 41 | 48 | 171 | 15 | 567 | 151 | - | - | 1148 |
| Proving Ground, | 81 | 11469 | 5705 | 1043 | 208 | 18425 | 9769 | 2604 | 30798 | 138 | 41 | 41 | 48 | 213 | 17 | 567 | 151 | - | - | 1215 |
| Ft. Huachuca, | 82 | 12232 | 5696 | 1062 | 208 | 19176 | 9773 | 2606 | 31555 | 138 | 41 | 41 | 48 | 213 | 17 | 567 | 151 | - | - | 1215 |
| Arizona | 83 | 12965 | 5722 | 1067 | 209 | 19963 | 9786 | 2608 | 32335 | 138 | 41 | 41 | 48 | 213 | 17 | 567 | 151 | - | - | 1215 |
| 37. | | | | | | | | | | | | | | | | | | | | |
| Electronics | 80 | 9662 | 480 | - | 30 | 10172 | 517 | - | 10689 | 221 | - | - | - | - | - | 34 | - | - | - | 255 |
| Research and | 81 | 8783 | 525 | - | - | 9308 | 607 | - | 9915 | 222 | - | - | - | - | - | 35 | - | - | - | 257 |
| Development | 82 | 9893 | 525 | - | - | 10418 | 607 | - | 11025 | 222 | - | - | - | - | - | 35 | - | - | - | 257 |
| Command HQs, | 83 | 10101 | 525 | - | - | 10626 | 607 | - | 11233 | 222 | - | - | - | - | - | 35 | - | - | - | 257 |
| Adelphi, Maryland | | | | | | | | | | | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| | | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Rep Years) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|----|-----------------------|------------|-----|------|-------|-----------------|-----------|------------|---------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Installation and Location | FY | RDTE Funds | | | | | All Other Funds | Sub-Total | Mil. Pers. | | Civil Service | | | | | Contract or Mil. Pers. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Bureau | Other Army | DOD | RDTE | Other | | | Total | Paid From Army RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE</ |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | | TOA (\$ in Thousands) | | | | PERSONNEL (Non-Years) | | | | | | | | | | | |
|--|-----------------------------------|----------------------------|-----|------|-------|-----------------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|--|
| | | All Other Funds/ Sub-Total | | | | Civil Service | | | | Contractor | | | | | | | |
| | | | | | | Paid | | Paid | | Paid | | Paid | | Paid | | | |
| | | | | | | From Army | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other | From RDTE | From Other | |
| FY | RDTE | Other | DDO | RDTE | Other | Total | RDTE | Other | Total | From Army | From RDTE | From Other | From RDTE | From Other | Total | | |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | |
| 41. | | | | | | | | | | | | | | | | | |
| 80 | Field | 1495 | 28 | - | 217 | 1740 | 2087 | - | 3827 | 37 | - | - | - | 131 | - | 168 | |
| 81 | Artillery | 1357 | - | - | - | 1357 | 2792 | - | 4149 | 37 | - | - | - | 152 | - | 189 | |
| 82 | Board, Ft. | 1644 | - | - | - | 1644 | 2785 | - | 4429 | 37 | - | - | - | 152 | - | 189 | |
| 83 | Sill, Oklahoma | 1395 | - | - | - | 1395 | 2782 | - | 4177 | 37 | - | - | - | 152 | - | 189 | |
| 42. | | | | | | | | | | | | | | | | | |
| 80 | Foreign | 81 | - | - | - | 81 | 25 | - | 106 | 5 | - | - | - | 1 | - | 6 | |
| 81 | Science and | 85 | - | - | - | 85 | 29 | - | 114 | 5 | - | - | - | 1 | - | 6 | |
| 82 | Technology | 106 | - | - | - | 106 | 29 | - | 135 | 5 | - | - | - | 1 | - | 6 | |
| 83 | Center, Charlottesville, Virginia | 111 | - | - | - | 111 | 28 | - | 139 | 5 | - | - | - | 1 | - | 6 | |
| 43. | | | | | | | | | | | | | | | | | |
| 80 | Infantry | 1829 | - | - | 558 | 2387 | 1809 | - | 4196 | 55 | - | - | - | 114 | - | 169 | |
| 81 | Board, | 1803 | - | - | 154 | 1957 | 2236 | - | 4193 | 55 | - | - | - | 122 | - | 177 | |
| 82 | Ft. Benning, | 1945 | - | - | 90 | 2035 | 2230 | - | 4265 | 55 | - | - | - | 122 | - | 177 | |
| 83 | Georgia | 2126 | - | - | - | 2126 | 2227 | - | 4353 | 55 | - | - | - | 122 | - | 177 | |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IH-HOUSE

Section 4 (Contd)

| | | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Non-Years) | | | | | | | | | |
|---|----|-----------------------|-------|-------|-----|-------|--------|-------|---|------------|-------|-----------------------|------|------------|------|-------|------|-------|---|-------|--|
| | | RDTE Funds | | | | All | | Sub- | | Mil. Pers. | | Civil Service | | Contractor | | Mil. | | Other | | Total | |
| | | Mgmt | Other | Army | DOD | Funds | Other | Total | | RDTE | Other | Paid | From | Paid | From | In | | | | | |
| | | Bureau | | | | | | | | | | RDTE | RDTE | RDTE | RDTE | Funds | Work | | | | |
| Installation and Location | FY | | | | | | | | | | | | | | | | | | | | |
| Army Non-Industrial Installations | | | | | | | | | | | | | | | | | | | | | |
| 44. | | | | | | | | | | | | | | | | | | | | | |
| Institute of Surgical | 80 | 2268 | - | - | - | 714 | 2982 | 2506 | - | 5488 | 78 | - | - | 1 | - | 150 | - | - | - | 229 | |
| Research, Ft. Sam Houston, Texas | 81 | 2902 | - | - | - | 250 | 3152 | 2892 | - | 6044 | 81 | - | - | 1 | - | 150 | - | - | - | 232 | |
| | 82 | 2629 | - | - | - | 275 | 2904 | 2879 | - | 5783 | 81 | - | - | 1 | - | 150 | - | - | - | 232 | |
| | 83 | 2839 | - | - | - | 275 | 3114 | 2870 | - | 5984 | 81 | - | - | 1 | - | 150 | - | - | - | 232 | |
| 45. | | | | | | | | | | | | | | | | | | | | | |
| Intelligence and Security | 80 | 1258 | 29 | - | - | 290 | 1577 | 1230 | - | 2807 | 21 | - | - | - | - | 77 | - | - | - | 98 | |
| Test Board, Ft. Huachuca, Arizona | 81 | 3344 | 10 | - | - | 349 | 3703 | 1222 | - | 4925 | 17 | - | - | - | - | 66 | - | - | - | 83 | |
| | 82 | 3354 | 10 | - | - | 500 | 3864 | 1277 | - | 5141 | 24 | - | - | - | - | 69 | - | - | - | 93 | |
| | 83 | 3761 | 11 | - | - | 1450 | 5222 | 1277 | - | 6499 | 24 | - | - | - | - | 69 | - | - | - | 93 | |
| 46. | | | | | | | | | | | | | | | | | | | | | |
| Kwajalein Missile Range, Marshall Islands | 80 | 61170 | 8875 | 11550 | - | 30 | 81625 | 754 | - | 82379 | 131 | - | - | 2617 | 346 | 32 | - | - | - | 3126 | |
| | 81 | 70820 | 7555 | 9355 | - | 80 | 87810 | 884 | - | 88694 | 131 | - | - | 2655 | 313 | 32 | - | - | - | 3131 | |
| | 82 | 77675 | 8840 | 12430 | - | 30 | 98975 | 868 | - | 99843 | 131 | - | - | 2651 | 306 | 32 | - | - | - | 3120 | |
| | 83 | 82586 | 9715 | 14480 | - | - | 106781 | 857 | - | 107638 | 131 | - | - | 2651 | 306 | 32 | - | - | - | 3120 | |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| | | TOA (\$ in Thousands) | | | | PERSONNEL (Man-Years) | | | | | | | | | | | |
|--|----|-----------------------|------------|-----------|--|-----------------------|------------|-------|---------------|---------------------|----------------------|----------------------|----|-------|------------|-----|-------|
| Installation and Location | FY | RDTE Funds | | | All Other ¹ /Funds ² | Sub-Total | Mil. Pers. | | Civil Service | | | Contractor | | | Mil. Pers. | | Total |
| | | Mgmt Bureau | Other Army | Other DOD | | | RDTE | Other | Total | Paid From Army RDTE | Paid From Other RDTE | Paid From Other RDTE | In | Other | | | |
| | | | | | | | | | | | | | | | | | |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | |
| 47. | | | | | | | | | | | | | | | | | |
| Letterman Army | 80 | 5137 | 729 | - | 100 | 5966 | 2627 | - | 8593 | 107 | - | 41 | - | 157 | - | 305 | |
| Institute of | 81 | 5000 | 400 | - | 150 | 6050 | 3046 | - | 9096 | 125 | - | 41 | - | 158 | - | 324 | |
| Research, San | 82 | 6035 | 600 | - | 250 | 7085 | 3032 | - | 10117 | 148 | - | 41 | - | 162 | - | 351 | |
| Francisco, California | 83 | 6085 | 600 | - | 250 | 7835 | 3107 | - | 10942 | 148 | - | 41 | - | 162 | - | 351 | |
| 48. | | | | | | | | | | | | | | | | | |
| Liaison Field | 80 | 4777 | - | - | - | 4777 | 359 | - | 5136 | 124 | - | - | - | 17 | - | 141 | |
| Offices, | 81 | 5863 | - | - | - | 5863 | 407 | - | 6270 | 124 | - | - | - | 17 | - | 141 | |
| Various | 82 | 5065 | - | - | - | 5065 | 410 | - | 6375 | 124 | - | - | - | 17 | - | 141 | |
| Locations (ARI) | 83 | 6074 | - | - | - | 6074 | 406 | - | 6480 | 124 | - | - | - | 17 | - | 141 | |
| 49. | | | | | | | | | | | | | | | | | |
| Liaison | 80 | 534 | - | - | - | 534 | - | 46 | 580 | 15 | - | - | - | - | 4 | 19 | |
| Offices, | 81 | 541 | - | - | - | 541 | - | 54 | 595 | 15 | - | - | - | - | 4 | 19 | |
| Various | 82 | 783 | - | - | - | 783 | - | 54 | 837 | 15 | - | - | - | - | 4 | 19 | |
| Locations | 83 | 896 | - | - | - | 896 | - | 54 | 950 | 15 | - | - | - | - | 4 | 19 | |
| (DARCOM) | | | | | | | | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Cont'd)

| | | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | | | | | | | | | | | |
|--|----|-----------------------|------------|-----------|-------|-----------------|-------|-----------------------|-------|------------|------------|---------------|------|-------|------|------|-------|------|-------|------|-------|-----|-------|
| Installation and Location | FY | RDTE Funds | | | | All Other Funds | | Sub-Total | | Mil. Pers. | | Civil Service | | | Paid | | | From | | | RDTE | | Total |
| | | Mgmt Bureau | Other Army | Other DOD | Other | Total | RDTE | Other | Total | Army RDTE | Other RDTE | Paid | From | Other | Paid | From | Other | RDTE | Funds | Work | Other | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| 50. | | | | | | | | | | | | | | | | | | | | | | | |
| Medical Bio- | 80 | 3819 | 243 | 27 | - | 27 | 4116 | 569 | - | 4685 | 94 | - | - | - | - | - | - | - | - | 34 | - | 128 | |
| Engineering | 81 | 4521 | 137 | - | - | - | 4658 | 656 | - | 5314 | 102 | - | - | - | - | - | - | - | - | 34 | - | 136 | |
| R&D Laboratory, | 82 | 5207 | 140 | - | - | - | 5347 | 653 | - | 6000 | 102 | - | - | - | - | - | - | - | - | 34 | - | 136 | |
| Ft. Detrick, | 83 | 7034 | 140 | - | - | - | 7174 | 652 | - | 7826 | 102 | - | - | - | - | - | - | - | - | 34 | - | 136 | |
| 51. | | | | | | | | | | | | | | | | | | | | | | | |
| Medical R&D | 80 | 2334 | - | - | - | 136 | 2470 | 957 | - | 3427 | 78 | - | - | - | - | - | - | - | - | 57 | - | 146 | |
| Command, Ft. | 81 | 4784 | 25 | - | - | - | 4809 | 1104 | - | 5913 | 81 | - | - | - | - | - | - | - | - | 57 | - | 149 | |
| Detrick, | 82 | 4575 | 25 | - | - | - | 4600 | 1099 | - | 5699 | 81 | - | - | - | - | - | - | - | - | 57 | - | 149 | |
| Maryland | 83 | 5219 | 25 | - | - | - | 5244 | 1096 | - | 6340 | 81 | - | - | - | - | - | - | - | - | 57 | - | 149 | |
| 52. | | | | | | | | | | | | | | | | | | | | | | | |
| Medical | 80 | 9051 | 313 | - | - | 14 | 9378 | 5192 | 169 | 14739 | 191 | - | - | - | - | - | - | - | - | 311 | 10 | 517 | |
| Research | 81 | 9750 | 250 | - | - | 10 | 10010 | 5994 | 196 | 16200 | 199 | - | - | - | - | - | - | - | - | 311 | 10 | 525 | |
| Institute of | 82 | 10802 | 275 | - | - | 13 | 11090 | 5967 | 195 | 17252 | 199 | - | - | - | - | - | - | - | - | 311 | 10 | 525 | |
| Infectious | 83 | 11789 | 275 | - | - | 13 | 12077 | 5949 | 195 | 18221 | 199 | - | - | - | - | - | - | - | - | 311 | 10 | 525 | |
| Diseases, Ft. Detrick, Maryland | | | | | | | | | | | | | | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | | | | | |
|---|----|--------------|------------|-----------|------|-----------------|-----------|------------|-------|-----------------------|---------------|------------|-----------|-----------------|-----------|-----------------|------------|------------|------|-------|
| Installation and Location | FY | RDTE Funds | | | | All Other Funds | Sub-Total | Mil. Pers. | | | Civil Service | | | Contractor | | | Mil. Pers. | | | Total |
| | | Spent Bureau | Other Army | Other DOD | RDTE | | | Other | Total | Paid Army | From RDTE | Paid Other | From RDTE | Paid From Other | From RDTE | Paid From Other | In RDTE | Other Work | | |
| | | | | | | | | | | | | | | | | | | | | |
| Industrial Fund Installations | | | | | | | | | | | | | | | | | | | | |
| 53. Mobility Equipment R&D Command, Ft. Belvoir, Virginia | 80 | 13809 | 6996 | 324 | - | 21129 | 1140 | - | 22269 | 750 | 3 | 433 | - | - | - | 76 | - | - | 1262 | |
| | 81 | 14118 | 9560 | 300 | - | 23978 | 1309 | - | 25287 | 793 | 3 | 422 | - | - | - | 76 | - | - | 1294 | |
| | 82 | 20741 | 7170 | 300 | - | 28211 | 1310 | - | 29521 | 883 | - | 335 | - | - | - | 76 | - | - | 1294 | |
| | 83 | 22406 | 7170 | 300 | - | 29876 | 1311 | - | 31187 | 883 | - | 335 | - | - | - | 76 | - | - | 1294 | |
| 54. Natick R&D Command, Natick, Massachusetts | 80 | 21528 | 1292 | 336 | 514 | 23670 | 1489 | 60 | 25219 | 784 | 11 | 18 | - | - | - | 99 | 4 | - | 916 | |
| | 81 | 30223 | 1408 | 200 | 560 | 35991 | 1709 | 82 | 36882 | 768 | 5 | 13 | - | - | - | 99 | 5 | - | 890 | |
| | 82 | 30147 | 1493 | 212 | 560 | 36412 | 1709 | 83 | 38204 | 769 | 5 | 12 | - | - | - | 99 | 5 | - | 890 | |
| | 83 | 31180 | 1582 | 212 | 560 | 35534 | 1712 | 82 | 37328 | 768 | 5 | 13 | - | - | - | 99 | 5 | - | 890 | |
| 55. Night Vision and Electro-Optics Laboratory, Ft. Belvoir, Virginia | 80 | 1025 | 2351 | 685 | 5019 | 20980 | 480 | - | 21460 | 320 | 13 | 105 | - | - | - | 32 | - | - | 470 | |
| | 81 | 10206 | 2300 | 500 | 5000 | 22006 | 551 | - | 22557 | 328 | 9 | 101 | - | - | - | 32 | - | - | 470 | |
| | 82 | 17329 | 2300 | 500 | 5000 | 25129 | 552 | - | 25681 | 341 | 9 | 88 | - | - | - | 32 | - | - | 470 | |
| | 83 | 21007 | 2300 | 500 | 5000 | 28807 | 552 | - | 29359 | 355 | 9 | 74 | - | - | - | 32 | - | - | 470 | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

| | | TOA (\$ in Thousands) | | | | PERSONNEL (in Years) | | | | | | | | | |
|--|--|-----------------------|--|--|--|----------------------|-------|-------|-------|--------------|-------|-------|-------|--------------|-------|
| | | | | | | Civil Service | | Paid | | Cost of Mil. | | Paid | | Cost of Mil. | |
| | | | | | | Paid | From | Paid | From | Paid | From | Paid | From | Paid | From |
| | | | | | | Army | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other | RDTE | Other |
| | | | | | | RDTE | Other | | | | | | | | |

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| TOA (\$ in Thousands) | | | | PERSONNEL (Man-years) | | | | | | | | | | | | | | |
|-----------------------------------|----|-------------|------------|-----------------------|-----------------|-----------|------------|-------|-------|---------------|-----------|-----------------|------------|-----------------|------|-----------------|------------|-------|
| Installation and Location | FY | RDTE Funds | | | All Other Funds | Sub-Total | MIL. Pers. | | Total | Civil Service | | | Contractor | | | | MIL. Pers. | |
| | | Mgmt Bureau | Other Army | DDO | | | RDTE | Other | | Paid | From Army | From Other RDTE | Paid | From Other RDTE | Paid | From Other RDTE | In Work | Other |
| | | | | | | | | | | | | | | | | | | |
| Army Non Industrial Installations | | | | | | | | | | | | | | | | | | |
| 59. | | | | | | | | | | | | | | | | | | |
| Signal Warfare | 80 | 17996 | 1667 | 17012 | 2774 | 38540 | 360 | 421 | 39330 | 70 | 33 | 8 | 138 | 24 | 28 | 301 | | |
| Laboratory, | 81 | 17035 | 6022 | 20964 | 2218 | 46239 | 512 | 496 | 45247 | 79 | 35 | 7 | 157 | 29 | 29 | 336 | | |
| Vint Hill | 82 | 29378 | 4172 | 28666 | 3842 | 66056 | 511 | 496 | 67063 | 79 | 35 | 7 | 202 | 29 | 29 | 381 | | |
| Farms, Virginia | 83 | 37932 | 2128 | 33997 | 4544 | 78601 | 531 | 497 | 79609 | 79 | 35 | 7 | 233 | 29 | 29 | 412 | | |
| 60. | | | | | | | | | | | | | | | | | | |
| Standardization Group, | 80 | 16 | - | - | - | 16 | 29 | - | 45 | - | - | - | - | 2 | - | 2 | | |
| Australia | 81 | 16 | - | - | - | 16 | 29 | - | 45 | - | - | - | - | 2 | - | 2 | | |
| | 82 | 36 | - | - | - | 36 | 29 | - | 63 | - | - | - | - | 2 | - | 2 | | |
| | 83 | 42 | - | - | - | 42 | 29 | - | 71 | - | - | - | - | 2 | - | 2 | | |
| 61. | | | | | | | | | | | | | | | | | | |
| Standardization Group, | 80 | 42 | - | - | - | 42 | 29 | - | 71 | 2 | - | - | - | 2 | - | 4 | | |
| Canada | 81 | 48 | - | - | - | 48 | 29 | - | 77 | 2 | - | - | - | 2 | - | 4 | | |
| | 82 | 73 | - | - | - | 73 | 29 | - | 102 | 2 | - | - | - | 2 | - | 4 | | |
| | 83 | 82 | - | - | - | 82 | 29 | - | 111 | 2 | - | - | - | 2 | - | 4 | | |

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

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14/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IR-HOUSE

Section 4 (Contd)

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | PERSONNEL (Man-Years) | | | | | | | | | | | |
|--|----|-----------------------|------------|-----------------|-----------|------------|-----------------------|---------------|-------|---------------------|----------------------|----------------------|----------------------|-------|-------|--------------|----|-----|
| | | RDTE Funds | | All Other Funds | Sub-Total | Mil. Pers. | | Civil Service | | Contractor | | Mil. Pers. | | Other | Total | | | |
| | | Dept Bureau | Other Army | | | DOD | RDTE | Other | Total | Paid From Army RDTE | Paid From Other RDTE | Paid From Other RDTE | Paid From Other RDTE | | | In RDTE Work | | |
| | | | | | | | | | | | | | | | | | | |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | | |
| 65. Test and Evaluation | 80 | 17177 | 159 | - | - | 17336 | 72 | 1417 | 18825 | 390 | - | - | 1 | 38 | - | 5 | 94 | 528 |
| | 81 | 16288 | 159 | - | - | 16447 | 82 | 1627 | 18156 | 401 | - | - | 14 | 52 | - | 5 | 94 | 566 |
| | 82 | 19105 | - | - | - | 19105 | 83 | 1628 | 20816 | 401 | - | - | 14 | 78 | - | 5 | 94 | 592 |
| Headquarters, Aberdeen, Maryland | 83 | 19249 | - | - | - | 19249 | 82 | 1628 | 20959 | 401 | - | - | 14 | 78 | - | 5 | 94 | 592 |
| 66. Tri-Service Tactical Communications (TRI-TAC), Joint Test Element, Ft. Huachuca, Arizona | 80 | 1304 | - | 2388 | - | 3692 | 168 | - | 3860 | 54 | - | - | - | - | - | 11 | - | 65 |
| | 81 | 1592 | - | 2730 | - | 4322 | 193 | - | 4515 | 54 | - | - | - | - | - | 11 | - | 65 |
| | 82 | 1660 | - | 3018 | - | 4678 | 194 | - | 4872 | 54 | - | - | - | - | - | 11 | - | 65 |
| | 83 | 1781 | - | 3325 | - | 5106 | 193 | - | 5299 | 54 | - | - | - | - | - | 11 | - | 65 |

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| Installation and Location Army Non-Industrial Fund Installations | FY | TOA (\$ in Thousands) | | | | PERSONNEL (Non-Years) | | | | | | | | | |
|--|----|-----------------------|------------|-----------------|-------|-----------------------|-------|------------|-------|---------------|-------|---------------------|----------------------|---------------|-------|
| | | RDTE Funds | | All Other Funds | | Sub-Total | | Mil. Pers. | | Civil Service | | Contractor | | Mil. Pers. | |
| | | Mgmt Bureau | Other Army | DOD | Other | 1/ | Total | RDTE | Other | Total | Total | Paid From Army RDTE | Paid From Other RDTE | In Other Work | Total |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 67. | | | | | | | | | | | | | | | |
| Tri-Service | 80 | 6040 | - | - | - | - | 6040 | 312 | - | 6352 | 112 | - | - | 21 | 133 |
| Tactical | 81 | 7048 | - | - | - | - | 7048 | 112 | - | 7406 | 112 | - | - | 21 | 133 |
| Communications | 82 | 7266 | - | - | - | - | 7266 | 358 | - | 7624 | 112 | - | - | 21 | 133 |
| Systems (TRI-TAC), Ft. Monmouth, New Jersey | 83 | 7487 | - | - | - | - | 7487 | 359 | - | 7846 | 112 | - | - | 21 | 133 |
| 68. | | | | | | | | | | | | | | | |
| Tropic Test Center, Panama | 80 | 2764 | 43 | - | - | 17 | 2824 | 1152 | - | 3976 | 77 | 1 | 1 | 2 | 163 |
| Canal Zone, Panama | 81 | 2923 | 48 | - | - | 55 | 3026 | 1322 | - | 4348 | 76 | 1 | 1 | 3 | 162 |
| | 82 | 3181 | 40 | - | - | 37 | 3258 | 1310 | - | 4568 | 77 | 1 | 1 | 2 | 165 |
| | 83 | 3474 | 41 | - | - | 34 | 3549 | 1298 | - | 4867 | 78 | 1 | 1 | 2 | 162 |
| 69. | | | | | | | | | | | | | | | |
| Walter Reed Army Institute of Research, Washington, DC | 80 | 17606 | 527 | 284 | - | 131 | 18548 | 7528 | 569 | 26645 | 400 | - | 24 | 451 | 937 |
| | 81 | 25724 | 190 | 56 | - | 3 | 25973 | 8762 | 656 | 35391 | 453 | - | 25 | 454 | 994 |
| | 82 | 26231 | 190 | 56 | - | 3 | 26480 | 8791 | 653 | 35924 | 476 | - | 25 | 458 | 1021 |
| | 83 | 29137 | 190 | 56 | - | 3 | 29386 | 8764 | 652 | 38802 | 476 | - | 25 | 458 | 1021 |

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | | | | |
|---|----|-----------------------|--------|--------|------|-----|-------------------------------|------------|--------|-------|-----------|-----------------------|-----------|------------|------------|------------|------------|-----------|------|------------|-------|
| | | RDTE Funds | | | | | All Other Funds ^{1/} | | | | | Civil Service | | | | | Contractor | | | | |
| | | RDTE | | Other | | DOD | Sub-Total | Mil. Pers. | | Total | Army RDTE | Paid From | Paid From | Other RDTE | Other RDTE | Funds Mark | Paid From | Paid From | In | Other RDTE | Total |
| | | Bureau | Army | Bureau | Army | | | RDTE | Other | | | | | | | | | | | | |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | | | | | |
| 70. | | | | | | | | | | | | | | | | | | | | | |
| White Sands Missile Range, Las Cruces, New Mexico | 80 | 114314 | 20777 | 6044 | | | 9833 | 150968 | 12148 | - | 163116 | 2155 | 222 | 27 | 1043 | - | 810 | - | 810 | - | 4257 |
| | 81 | 139615 | 21996 | 6250 | | | 10240 | 178101 | 14041 | - | 192142 | 2228 | 230 | 27 | 1044 | - | 815 | - | 815 | - | 4344 |
| | 82 | 150474 | 26588 | 7563 | | | 12372 | 205997 | 14128 | - | 220125 | 2229 | 230 | 27 | 1041 | - | 820 | - | 820 | - | 4347 |
| | 83 | 168194 | 27186 | 7724 | | | 12613 | 215717 | 14227 | - | 229944 | 2196 | 227 | 27 | 1027 | - | 825 | - | 825 | - | 4302 |
| 71. | | | | | | | | | | | | | | | | | | | | | |
| Yuma Proving Ground, Yuma, Arizona | 80 | 19869 | 12873 | 1334 | | | 2149 | 36225 | 5750 | - | 41975 | 823 | - | 10 | 110 | - | 383 | - | 383 | - | 1326 |
| | 81 | 29711 | 16100 | 1340 | | | 1913 | 49064 | 5443 | - | 54507 | 833 | - | 10 | 176 | - | 316 | - | 316 | - | 1335 |
| | 82 | 30839 | 15047 | 2440 | | | 3019 | 51345 | 5445 | - | 56790 | 833 | - | 10 | 200 | - | 316 | - | 316 | - | 1359 |
| | 83 | 35023 | 15973 | 2176 | | | 887 | 54059 | 5450 | - | 59509 | 833 | - | 10 | 200 | - | 316 | - | 316 | - | 1359 |
| Subtotal Army Non-Industrial Fund | 80 | 778519 | 174570 | 63803 | | | 131728 | 1148620 | 105238 | 7526 | 1261384 | 15370 | 859 | 3496 | 4572 | 969 | 6731 | 491 | 6731 | 491 | 32468 |
| | 81 | 941121 | 183916 | 65364 | | | 143155 | 1333556 | 119843 | 8815 | 1462214 | 15512 | 801 | 3815 | 5033 | 1177 | 6659 | 495 | 6659 | 495 | 33492 |
| | 82 | 1018299 | 185529 | 76664 | | | 135489 | 1415981 | 120444 | 8543 | 1544968 | 15484 | 776 | 3640 | 5416 | 1066 | 6701 | 480 | 6701 | 480 | 33563 |
| | 83 | 1085329 | 185079 | 83187 | | | 145757 | 1499352 | 120266 | 8538 | 1628156 | 15468 | 746 | 3641 | 5499 | 1104 | 6600 | 480 | 6600 | 480 | 33628 |
| Total, In-House | 80 | 988917 | 268126 | 86307 | | | 145630 | 1488980 | 111214 | 7837 | 1608031 | 22810 | 2081 | 3872 | 4660 | 969 | 7058 | 508 | 7058 | 508 | 41938 |
| | 81 | 1158715 | 274720 | 88831 | | | 151439 | 1673705 | 126707 | 8900 | 1809312 | 23038 | 2066 | 4092 | 5117 | 1177 | 6983 | 499 | 6983 | 499 | 42972 |
| | 82 | 1257017 | 286050 | 96545 | | | 164320 | 1783932 | 126369 | 8627 | 1918928 | 23133 | 1983 | 3899 | 5451 | 1066 | 6983 | 486 | 6983 | 486 | 42999 |
| | 83 | 1333736 | 281643 | 102715 | | | 156345 | 1874439 | 125611 | 9019 | 2009069 | 23124 | 1950 | 3930 | 5534 | 1104 | 6946 | 503 | 6946 | 503 | 43100 |

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY ANALYSTS OF REIMBURSABLE PROGRAM (\$ in Thousands)

Section 5

| | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE |
|--|-------------------|---------------------|---------------------|
| <u>Customer</u> | | | |
| Department of the Army | 486,289 | 420,128 | 426,622 |
| <u>Other Department of Defense Components</u> | | | |
| Department of the Navy | 34,296 | 39,560 | 14,562 |
| Department of the Air Force | 38,907 | 51,041 | 66,000 |
| US Marine Corps | 4,496 | 10,255 | 5,642 |
| Other Defense Agencies | 19,398 | 12,820 | 13,249 |
| Subtotal | 583,386 | 533,804 | 526,075 |
| <u>Activities Outside Department of Defense</u> | | | |
| Department of Commerce | 542 | 600 | 450 |
| Department of Energy | 2,433 | 4,553 | 3,157 |
| Department of Treasury | 433 | 600 | 200 |
| Department of Health and Human Services | 380 | 575 | 700 |
| Department of Transportation | 2,680 | 617 | 902 |
| National Aeronautical and Space Administration | 871 | 1,558 | 1,689 |
| Department of Interior | 403 | 620 | 710 |
| Environmental Protection Agency | 435 | 100 | 150 |
| Trust Funds | 436 | 225 | 225 |
| Other | 6,448 | 7,078 | 6,667 |
| Nonfederal Sources | 10,248 | 12,175 | 11,575 |
| Subtotal | 25,309 | 28,696 | 26,425 |
| TOTAL | 608,695 | 562,500 | 552,500 |

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Section 5 (Contd)

ANALYSIS OF REIMBURSABLE PROGRAM

DESCRIPTION OF REIMBURSABLE WORK

A large percentage of the Research, Development, Test and Evaluation reimbursable program is for intra-Army (both inter/intra-appropriation) work or services performed under automatic reimbursement procedures. Research, Development, Test and Evaluation efforts also support requests received from other Federal and Nonfederal agencies on a reimbursable basis. Major areas of support include:

- a. Navy - Share of advancing blade concept helicopter high speed test program; Joint services small arms program; Joint cruise missile project; Fuel filter evaluation; Testing magazine protection enhancement program; Navy armor plate, decontamination-gas membrane; Armored combat vehicle technology support; Joint test element, Tri-Service Tactical Communications Systems Office; Mine neutralization studies; Surfzone transition analysis.
- b. Air Force - Effect of munitions on hardened structures; Installation security systems; 105mm blank rounds; Anti-aircraft blast dissemination technology; Aerosol displacement profil test; Environmental control unit; Joint microwave landing system; Advanced fence sensor development program; Support to MINUTEMAN II and III firing missions; Advanced ballistic reentry system tests; Space detection and tracking system; Modifications to the ALTAIR radar; Develop litter patient decontamination shower; Evaluation of Air Force clothing; Signature calibration and thermal control verification; Threat models for intercontinental ballistic missile/sea launched ballistic missile geometry simulations; Side looking airborne radar imagery; Radar tracking; Global positioning systems tests; Infrared flyover services; Air Force armor plate.
- c. Marine Corps - Support of the joint test element, Tri-Service Tactical Communications Systems Office; 100 gallon per minute fuel monitoring assembly; Tactical field fuel dispensing system; Solar power source program; 10 kilowatt generator engineering service; Mule program support; Medical field refrigerator modification; Studies of heat stress in carrier based personnel wearing chemical warfare clothing; Calibration in support of WEAPONER devices; Department of the Navy share of survey of special foreign activities; 5 inch semi-active laser.
- d. Other Defense Agencies:
 - (1) Defense Advanced Research Projects Agency - No tail rotor program; NAVSTAR ground positioning system; High altitude large optics program; Rail gun advanced indirect fire system.
 - (2) Defense Mapping Agency - Photogrammetric exploitation; Cartographic exploitation; Geodetic and geophysical support; Data base and data bank; Products and services.

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Section 5 (Cont'd)

ANALYSIS OF REIMBURSABLE PROGRAM

(1) Defense Nuclear Agency - Scientific services program; Nuclear weapons effects; SILO test program; Shallow buried structures test; Ground motion studies; Material modeling; Grout development; Federal Republic of Germany road cratering tests.

e. Department of Energy - Conversion of cellulose to glucose; SEABED nuclear waste disposal program closure studies; Grout studies; Radioactive waste; Micro fracturing; Coal mine shafts; Food processing; Food waste recovery system.

f. National Aeronautical and Space Administration - Tape scoring; Developmental testing of electronic warfare equipment; Space shuttle program.

g. Nonfederal Sources - Canadian drone; Development of antitank 2 warhead for the Multiple Launched Rocket System in the Federal Republic of Germany; Treatment at the Institute of Surgical Research burn center; Fox tunnel, Yukon River bridge project; Passive seismic investigation; Oil creek project.

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY FEDERAL CONTRACT RESEARCH CENTERS

Section 6

Federal Contract Research Centers (FCRCs) are those organizations primarily engaged in providing specialized technical and scientific effort necessary to supplement that available in the Army. The centers listed are those sponsored by the Department of Defense which provide technical and management services in the management of the Army's programs. These centers provide independent, specialized, technical and scientific capabilities to supplement that available within the Department of the Army.

FCRCs have been established to permit more organizational flexibility, and greater availability of technical and scientific personnel. These research centers possess unique skills and capabilities resulting from the development of highly specialized association and practical experience with the Army. The in-depth background provides the Army with a research capability that cannot be immediately obtained elsewhere. Long association with the Department of Defense enables these centers to render quick response technical advisory service as well as to perform detailed research and analysis. This long association has tailored these research centers to be compatible with Army interests, procedures and operational requirements.

While the Army no longer sponsors an FCRC it will be necessary to continue research and development effort of FCRCs sponsored by the Department of Defense and the other services. These research and development contracts provide the Army with innovative products and techniques appropriate to current and long-range Army missions and plans.

The requested FY 1989 FCRC requirements reflect an increase of \$6.4 million when comparing FY 1988 to FY 1989.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

The following summary identifies the estimated work, excluding subcontract effort, to be placed with each Federal Contract Research Center (FCRC) from the Research, Development, Test and Evaluation, Army appropriation and from the other Army appropriations.

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION

Research, Development, Test and Evaluation, Army

| | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE | FY 1983 ESTIMATE |
|--|-------------------|---------------------|---------------------|---------------------|
| 6.21.05.A Materials | 20 | 200 | - | - |
| 6.23.07.A Laser Weapons Technology | 25 | 80 | 100 | 100 |
| 6.26.18.A Ballistics Technology | 30 | 50 | 60 | 80 |
| 6.37.30.A Tactical Surveillance System | 582 | 408 | 482 | 528 |
| 6.37.45.A Tactical Electronic Surveillance Systems | 388 | 459 | 535 | 594 |
| 6.47.40.A Tactical Surveillance System | 485 | 357 | 428 | 462 |
| 6.47.45.A Tactical Electronic Surveillance Systems | 291 | 255 | 321 | 396 |
| Total RDTE, Army | 1,821 | 1,809 | 1,926 | 2,160 |
| Total Aerospace Corporation | 1,821 | 1,809 | 1,926 | 2,160 |

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Section 6 (Cont'd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

Remarks: The expertise and facilities of Aerospace Corporation are required to support the Army in FY 1982-1983 as follows:

1. Laser Weapons Technology. Aerospace will provide experimental and theoretical analysis of pulse chemical lasers. Requirements cover areas of basic research and determination of rate data and theoretical analysis of pulse chemical lasers. The Directed Energy Directorate of the Army Missile Laboratory has responsibility for the development of High Energy Laser Weapon Systems for the Army which includes the pulse chemical laser work. Program requirements call for completion of demonstration model during the 1983-1985 timeframe; therefore, data is needed immediately. Aerospace has the capability required to perform this effort in an expeditious manner.

2. Ballistics Technology.

a. Aerospace Corporation has personnel who have developed and utilized computer models of the muzzle flow field. Additionally, at Aerospace there is a significant computational gasdynamics capability which has developed in response to Air Force requirements regarding analysis of rocket and space systems. The requested program will take advantage of the expertise available at Aerospace.

b. In FY 1980, the flow over a two-dimensional muzzle brake was computed using the three-dimensional, time dependent finite element code. Preliminary analysis of the geometry of a computationally acceptable three-dimensional brake was initiated. In FY 1981, computation of the prior year idealized three-dimensional brake will begin. Comparison with parallel experiments at Ballistics Research Laboratory will be performed. Consideration will begin on a geometry of a field muzzle brake. In FY 1982, computation of the flow through the first baffle chamber of a field muzzle brake will be conducted. In FY 1983 and outyears, computation of the flow through both the first and second chambers of a double baffle muzzle brake will be conducted. Muzzle brake efficiencies will be determined and compared with experiment. Consideration will be given to the computation of the muzzle blast propagation away from the region of the muzzle brake toward the crew members of the weapon. A scheme to couple the three-dimensional finite element code to a more efficient one or two-dimensional shock fitting model will be addressed. Following this, the problem of muzzle flow through a realistic geometry muzzle brake and propagation of the muzzle blast to the gun crew area will be finalized.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

3. Tactical Surveillance/Electronic Surveillance Systems. The Army has tactical requirements that current, programmed, and new space systems can satisfy if proper trade-off studies are performed and if equipment, communications, personnel and interfaces necessary to integrate the functions to these systems with other, more conventional systems are identified and acquired. Aerospace Corporation provides General Systems Engineering and Technical Direction (GSE/TD) support to the Air Force in the management of complex space and missile systems. This work encompasses a wide spectrum of technical activities from initiation of a system concept through development, testing, and operational evaluation. Specifically, activities include advanced mission planning, definition of system requirements and detailed breakdown of segment specifications and overall systems engineering. In FY 1982, Aerospace efforts will be provided as follows:

- a. General System Support will be provided. Studies, both conceptual and hardware oriented, will be identified, scoped and performed according to established milestones. Aerospace will help develop a comprehensive system concept defining the functions, equipment, communications, personnel and interfaces necessary to integrate space system support into ground force operations. Long range planning and briefing support, both personnel and material will be provided.
- b. General System Engineering/Technical Direction in support of simulation development and documentation and in support of other contractor efforts to be defined will be provided.
- c. Aerospace will modify and exercise several simulation programs to evaluate the support of potential advanced space systems to the tactical commander.
- d. Aerospace will provide technical support and perform system studies in support of Army field evaluations.
- e. Aerospace will provide technical support and perform system studies in support of Army evaluation on the need for Army unique space systems capabilities.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

| | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE | FY 1983 ESTIMATE |
|--|-------------------|---------------------|---------------------|---------------------|
|--|-------------------|---------------------|---------------------|---------------------|

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Research, Development, Test and Evaluation, Army

| | | | | |
|---|----------|----------|----------|----------|
| 6.27.26.A Army Support to Defense Advanced Research Project Agency (DARPA) HOWLS. | 1,500 * | 9,545 | 10,949 | 11,252 |
| 6.33.04.A Ballistic Missile Defense Advanced Technology Program. | 8,767 | 1,800 ** | 1,700 ** | 1,300 ** |
| 6.37.06.A IFF Developments (NATO). | 2,000 ** | 3,785 | 4,560 | 4,760 |
| 6.53.01.A Kwajalein Missile Range (KMR). | 3,535 | 1,000 | 1,200 | 1,300 |
| 6.58.04.A White Sands Missile Range (WSMR). | 1,015 | 14,330 | 16,709 | 17,312 |
| Total RDTE, Army | 13,317 | - | - | - |
| Total RDTE, Army Included in DARPA Ceiling | 1,500 | 1,800 | 1,700 | 1,300 |
| Total RDTE, Army Included in Air Force Ceiling | 2,000 | 16,130 | 18,409 | 18,612 |
| Total Lincoln Laboratory, Massachusetts Institute of Technology | 16,817 | 15,459 | 16,619 | 17,600 |
| Subcontract effort excluded from this amount. | 11,146 | | | |

* Program funded by Army but supported with Advanced Research Project Agency (ARPA) ceiling.

** Program funded by Army but supported with Air Force ceiling.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

Remarks: Lincoln Laboratory technical effort is required to support the Army during FY 1982-1983 as follows:

1. Ballistic Missile Defense Advanced Technology Program. Lincoln Laboratory provides a unique research and development capability not duplicated in industry. They also provide an objective capability to evaluate industrial efforts. Lincoln Laboratory allows for high risk and high pay-off developments needed to advance the state-of-the-art. In prior years, Lincoln Laboratory has performed research effort in reentry discrimination, exoatmospheric discrimination and designation, large band digital signal processing, operation of the Army Optical Station at Kwajalein Missile Range, and requirements definition for advanced concepts in terminal and midcourse regimes. Effort will continue in the areas of discrimination techniques, signal processing, and advance radar components. Millimeter Wave instrumentation radar and monolithic Millimeter Wave transceiver module efforts will be completed in FY 1982. Specific areas of effort include:

a. Discrimination Technology: Discrimination technology effort includes work in reentry discrimination, bulk discrimination, exoatmospheric designation and discrimination engineering and radar data analysis and interpretation. Discrimination techniques utilizing millimeter wavelength radars and passive optics will be evaluated.

b. Radar Technology: Radar technology effort includes work in millimeter-wave components, laser components, large bandwidth digital signal processing, and surface wave technology. It also includes the procurement and installation of a millimeter wave instrumentation radar at Kwajalein for data collection.

c. Optics Technology: Optics technology effort includes: Operation of the Army Optical Station at Kwajalein Missile Range, which includes two passive optical sensors and one laser sensor, obtaining signature measurements on targets-of-opportunity and conducting handover experiments between these sensors and the radars at Kwajalein Missile Range; and reduction and analysis of Army Optical Station data.

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LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

- d. Terminal and Midcourse Defense Technology: Effort includes continuation of terminal and midcourse defense technology requirements definition for advanced concepts; with specific efforts in assessing the Low Altitude Defense Non-Nuclear Defense Requirements for endo defense and the Forward Acquisition System Requirements in the exo region.
2. Identification Friend-or-Foe (IFF) Developments (NATO). Lincoln Laboratory efforts are required for continuation of technical support to the US Army Electronics Research and Development Command related to the Army portion of the Joint Service Effort to design the NATO Identification System for both air defense and battlefield IFF applications. Previous analytic, experimental and crossboard efforts have resulted in a Strawnan design for the system which is the US baseline for negotiations with NATO.
3. Kwajalein Missile Range (KHR). Continued Lincoln Laboratory support is required as outlined below:
 - a. The Kiernan Reentry Measurements Site radars which were developed by Lincoln Laboratory under Advanced Research Projects Agency sponsorship, and by direction of the Director, Defense Research and Engineering, were transferred to the Kwajalein Missile Range Directorate of the Ballistic Missile Defense Systems Command in 1968 to support the National Range mission.
 - b. The US possesses no other comparable facility capable of collecting exoatmospheric data and recording missile reentry phenomena than the Kiernan Reentry Measurement Site radar complex. The data collected by these instruments must be of the highest quality. High confidence in these test data leads to high confidence in missile development programs and ultimately in national strategic forces capabilities.

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LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

c. Lincoln Laboratory serves as Scientific Director of the Kiernan Reentry Measurements Site at Kwajalein Missile Range, and they are considered predominant experts for this particular task. They provide the technical management of the overall Kiernan Reentry Measurements Site instrumentation system which includes three very unique and complex radar sensors and their associated display, control, and recording equipments in support of mission operations. Additionally, they perform the offsite mission test planning, radar systems engineering, and data reduction and reporting.

d. Their overall efforts are pursuant to the objective of providing an integrated operation with multiple sensors whose total spectrum of capabilities will allow the collection of data for both strategic offensive and defensive weapon system development and which will function as an extremely flexible test bed for experiments on Advanced Ballistic Missile system techniques. The instrumentation system at the Kiernan Reentry Measurements Site is a continually evolving one due to the emphasis on using, in real time, the capabilities of the individual sensors to maximize the total effectiveness for data collection.

e. In summary, Lincoln Laboratory effort includes direction of all activities required to assure readiness and optimum coverage of a mission by the Kiernan Reentry Measurements Site radars; also, upgrades to the radars to meet the changing and unique mission requirements generated by range user programs, to improve data quality and system reliability are responsibilities of Lincoln Laboratory system engineers and analysts. Kwajalein Missile Range does not have the in-house capability to perform this effort. If the effort were sought from other contractual sources, the expertise gained at Lincoln Laboratory and nurtured during the last 15 years at government expense would be sacrificed and an unacceptable degradation in the quality and efficiency of support provided testing programs would occur.

4. White Sands Missile Range (WSMR). Continued Lincoln Laboratory support is required for the High Energy Laser Systems Test Facility which is being developed in response to congressional direction that a single DOD Test Service High Energy Laser Systems Test Facility be established at the White Sands Missile Range. The instrumentation for the High

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LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

Energy Laser Systems Test Facility consists of sensing, data handling, data transmission, data processing, data analysis, command and control, beam diagnostics and communications equipment designed for integrated test and evaluation of High Energy Laser systems. The High Energy Laser Systems Test Facility in conjunction with the White Sands Missile Range Test Complex will provide a flexible capability for demonstration of High Energy Laser and other directed energy beam systems early in the development cycle. Integrated testing at White Sands Missile Range will permit cost effective capability evaluation and data base accumulation for accelerated development and reduced system life cycle costs. Lincoln Laboratory provides consulting services and technical expertise for education and analysis of High Energy Laser test requirements and in the conceptual design of High Energy Laser Systems Test Facility instrumentation.

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MITRE CORPORATION

Research, Development, Test and Evaluation, Army

| | | | | | |
|--|-------|-------|-------|-------|-------|
| 6.22.02.A Aircraft Avionics Technology | 360 | | | | |
| 6.26.03.A Large Calibre and Nuclear Technology | - | 300 | 360 | 360 | 360 |
| 6.27.01.A Communications Technology | 791 | - | 290 | 290 | 330 |
| 6.27.03.A Combat Surveillance Target Acquisition/ID. | 44 | 466 | 890 | 890 | 1,320 |
| 6.37.07.A Communications Development | 550 | 712 | 300 | 300 | 318 |
| 6.37.13.A Communications Development (PLRS-JTIDS Hybrid) | - | - | 112 | 112 | - |
| 6.37.45.A Tactical Electronic Support Systems | - | 480 | 600 | 600 | 880 |
| 6.37.49.A Tactical Vulnerability Reduction | 310 | - | 480 | 480 | 480 |
| 6.47.01.A Communications Engineering Development | 400 | 546 | 570 | 570 | 625 |
| 6.47.12.A Tactical Data Systems Interoperability | 846 | 836 | 1,123 | 1,123 | 2,740 |
| 6.47.45.A Tactical EMI C&C Support (BETA) | 210 | 300 | 470 | 470 | 505 |
| 6.47.50.A Tactical Electronic E/M Systems | 290 | - | - | - | - |
| 6.47.79.A JINTACCS | 1,855 | 2,623 | 2,920 | 2,920 | 2,104 |
| Total RDTE, Army | 5,656 | 6,783 | 8,115 | 8,115 | 9,662 |

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| | | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE | FY 1983 ESTIMATE |
|--|--|-------------------|---------------------|---------------------|---------------------|
| FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT | | | | | |
| MITRE CORPORATION (Continued) | | | | | |
| Operations and Maintenance, Army | | | | | |
| 202399 | CENTAG CCIS | 460 | 497 | 567 | 602 |
| 202399 | USAREUR CCIS Implementation | 950 | 1,100 | 1,200 | 1,300 |
| 208015 | Army Command and Control Master Plan (ACMP) | - | - | 400 | 750 |
| 393111 | US Army Communications Command (AC ² MP & ABIC) | - | 200 | - | - |
| 393111 | US Army Communications Command (Transition Communication Planning) | - | - | 90 | 210 |
| 393145 | US Army Communications Command and Control Technical Support | 630 | 675 | 857 | 995 |
| 395701 | US Army Communications Command (ARBITS/UTIS) | 760 | 720 | 720 | 762 |
| | Total Operations and Maintenance, Army | 2,800 | 3,192 | 3,816 | 4,519 |
| | Total MITRE Corporation | 8,456 | 9,975 | 11,929 | 14,181 |

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

Remarks: MITRE Corporation expertise and technical support is required by the Army as follows:

1. Aircraft Avionics Technology.

- a. MITRE will assist the US Army Aviation Research and Development Command in defining helicopter C³ system requirements and in developing a methodology for identifying alternative configurations which satisfy these requirements for the post 1990 timeframe. At present, there is no methodology for determining future C³ system architectural needs for Army aviation. Such a methodology is needed to provide a tie between the operational needs and processes and the hardware and software systems that support those needs. The ongoing MITRE effort provides such a methodology and can lead to the development of an overall C³ system architecture for aviation.
- b. In general, the MITRE method produces a detailed description of operational processes, time factors and information exchanges within and external to aviation elements. With this, capability gaps and system deficiencies can be exposed, and comparisons between current systems and proposed alternatives can be carried out. A synthesis of future C³ architecture can then be carried out using advanced technology to redress system deficiencies and to meet future requirements.
- c. During FY 1980, MITRE conducted work which began defining the time and event sequences and the information flow sequences of a typical anti-armor mission. The FY 1981 effort completed the anti-armor mission and extended the analysis across the other Army aircraft missions, i.e., logistics, reconnaissance, medevac. From this data base the methodology for defining the aviation C³ architecture was developed and candidate architectures were described.
- d. During FY 1982 and FY 1983 MITRE will concentrate on system architecture investigations, computer simulation, and laboratory broadband of tested elements as delineated in the following task areas:

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MITRE CORPORATION (Continued)

(1) Development of Aviation Architecture. During FY 1982, the methodology development would be completed for determining the relationship between the mission operational needs and the future C3 architecture. This methodology is needed not only for the development of future candidate architectures but also to help identify the technology areas of thrusts that should be pursued by the US Army Aviation Research and Development Command. Candidate aviation C3 concepts such as the Executive Control Subordinate System. The architecture of the Executive Control Subordinate System is currently in the definition stage and information generated by the aviation architecture would help better define the interfaces between aviation elements and other Executive Control Subordinate System elements.

(2) C³ Technology Assessment. During FY 1982 and FY 1983 this effort would be conducted in conjunction with the development of a candidate architecture. It is necessary to conduct this task so as to ensure the technology of 1990-2000, which would be used by the elements of the Executive Control Subordinate System architecture, would also be incorporated into the aviation architecture. Recent technology surveys will be reviewed with focus on redressing any C3 short falls of the current helicopter C3 architecture and to meet the architectural requirements of the 1990's. Technologies would be identified with maximum payoff and minimum risk.

2. Large Calibre and Nuclear Technology. MITRE will provide analytical, modeling and general technical support to the Large Calibre Weapon Systems Laboratory, of the US Army Armament Research and Development Command, to assist the Large Calibre Weapon Systems Laboratory in the evaluation and development of advanced weapon systems such as Enhanced Self Propelled Artillery Weapons System. Other programs requiring assistance include guided projectiles and Improved Sensing Munitions. MITRE, for example, will provide a survivability module for the Enhanced Self Propelled Artillery Weapons System computer model used by the Large Calibre Weapon Systems Laboratory in order to investigate the advantages and disadvantages of tactics such as "shoot and scoot" and the dispersed battery; this may include the modification of MITRE's Stochastic Counter Artillery Model, if appropriate. In support of the Large Calibre Weapon Systems Laboratory guided projectile and Improved Sensing Munitions program, MITRE will provide and articulate the Command, Control, Communications, Intelligence data base for operational performance evaluations, as well as provide analytical support concerning the Command, Control, Communications, Intelligence issues as they develop.

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NITRE CORPORATION (Continued)

3. Communications Technology. MITRE will provide system research, analysis, and engineering support as follows:

a. They will provide specialist system design and engineering support to the Communications Research and Development Command in the identification, definition, and analysis of advanced system concepts and information handling techniques to include consideration of measures for assuring continuity of operations and acceptable levels of system survivability. The MITRE work will provide the basis for follow-on exploratory development and/or advanced development programs pursued to experimentally verify the feasibility and adequacy of proposed C3 system structures. During FY 1980, MITRE's work involved the initial identification and outline description of promising Army tactical C3 system structures, potential information handling techniques, and advanced user input-output facilities. This initial effort will provide a foundation for the follow-on work on the definition of advanced system concepts.

b. They will provide specialist technical support to the Communications Research and Development Command in the application of automatic data processing to tactical spectrum management and engineering; specific efforts will include development of compatibility and vulnerability analysis models to address emissions in the electromagnetic part of the spectrum with special emphasis on the analysis of spread spectrum system impact. In 1979, the Communications Research and Development Command working in conjunction with the Electromagnetic Compatibility Analysis Center initiated an exploratory development program to consider alternative system solutions for the effective management of the Army's use of the frequency spectrum. The total program will address decentralization of spectrum management and engineering functions, integration of terrestrial and satellite management, evolution and integration with the TRI-TAC tactical communications control facilities, interoperability with the future Army all source analysis center, generation and electronic distribution of Communications-Electronics Operating Instructions, and interaction with Joint, NATO, and allied systems. A modern spectrum management system is vital to the effective deployment and operation and analysis of a functional description of an interim benchmark systems. Initial MITRE effort involved the definition and analysis of a functional description of the temporal, physical, Automated Battlefield Spectrum Management and Engineering System. The information aspect of the temporal, physical, electrical and procedural interfaces have been determined. Tables were prepared to portray the information required by the Spectrum Management System from other tactical systems.

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MITRE CORPORATION (Continued)

c. MITRE personnel will participate as members of the Battlefield Information Distribution System working group in the detailed planning for and the conduct of the various phases of the corps level experiment. They will work with the US Army Training and Doctrine Command and US Army Materiel Development and Readiness Command representatives to determine the benefits of applying Battlefield Information Distribution System technology to closed loop systems which require data distribution capabilities. The Communications Research and Development Command, acting for the US Army Materiel Development and Readiness Command and in conjunction with the US Army Training and Doctrine Command, is presently involved in a program to refine the specifications and establish the potential for a digital data communications system for Army use on the battlefield. Specific applications include the transfer to digital data from sensors to command center computers and among division and Corps command center computers to demonstrate tactical operational concepts such as the Corps Information Flow concept, expected to be implemented in the mid to late 1980's. This project was initiated in order to determine whether certain critical operational needs, difficult to satisfy by the classic point-to-point network, could be served more efficiently by an all-digital network. Implementation of intrusion proof fiber optic cable into the Battlefield Information Distribution System tested experiment will be investigated. MITRE has been assisting the Communications Research and Development Command by active participation in this corps experiment working group sessions. This included preparation of draft plans for Phase I and II of the experiment which have been successfully implemented, Phase III which is currently underway and the preparation of a long range tentative plan to cover FY 1981-1985 activity. In addition, MITRE has assisted the Communications Research and Development Command in an evaluation and assessment of Phase I and II results as a collateral task. MITRE provides on call, assessments of the characteristics and capabilities of various hardware candidates for investigation in concert with the corps experiment. This type tasking includes assistance to the Communications Research and Development Command in the preparation of Statements of Work, proposal evaluation and contract performance monitoring for procurement actions associated with the experiment, including the Low Cost Packet Radio Effort. Prior to FY 1980, work was being done under the title, "Tactical Army Distribution (ADMS) Experiment". The project number remained the same. In FY 1980 MITRE produced a 5 year Master Plan for the Fort Bragg Experiment. This documentation provides detailed technical areas for investigation, and first cut funding requirements that will allow Army decision makers to select scenarios and topics that

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

are of most interest. MITRE is also preparing an overall Communications Research and Development Command ³ White Paper to more clearly focus on the Army C³ problem and their potential solution. The main thrust of MITRE efforts during FY 1982-1983 will be the preparation of specific plans for the utilization and evaluation of the corps level testbed resources at Fort Bragg including a master long range schedule. MITRE personnel will work closely with the Communications Research and Development Command, US Army Materiel Development and Readiness Command, US Army Training and Doctrine Command, XVIII Airborne Corps, and Defense Advanced Research Project Agency representatives in the preparation of these documents. In addition, MITRE will determine a feasible method of integrating associated developmental testing (e.g., Field Artillery, Army Air Defense, Beta and BELBAT) with the corps level experiment.

d. MITRE will investigate the conceptual design of the Army Battlefield Information Distribution System network using results from FY 1979/1980 basic research in the area of development of a set of computer programs as a vehicle for development of algorithms for large, dynamic data networks. These algorithms, design principles/concepts will be investigated with the Network Management Algorithm Vehicle to investigate the performance of the Battlefield Information Distribution System network operating under a large set of control algorithms. MITRE will also investigate generic system level architectures such as slotted/non-slotted, synchronous/asynchronous TDMA, as well as control concepts for fully distributed, partially distributed and centralized networks to establish a basis for trade-off analysis. Realistic military scenarios will be used as a framework for the Battlefield Information Distribution System network design concepts. MITRE will implement the investigation with emphasis on general areas such as evaluation of a variety of distributed routing/flow control algorithms for Army tactical environment; determination of the performance of different channel access modes (e.g., pure ALOHA, carrier sense, reservation, etc.) and of single versus multiple channel operation (including various data rates), in tactical mobile operations in typical terrain; and, quantification of the tradeoff between increased computational capability of networks elements and decreased overhead traffic levels between network elements. The main thrust of MITRE efforts in FY 1982 and FY 1983 will be completion of an investigation of the hardware and software aspects of digital network management and control via analysis, and computer modeling/simulation. MITRE will provide technical management support, program formulation, planning, coordination with related activities, systems analysis, and engineering. This includes assistance with the VMSIC task with academic research tasks related to Network Management, and the Low Cost Packet Radio task.

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MITRA CORPORATION (Continued)

4. Combat Surveillance Target Acquisition/Identification. MITRE support is required for analysis and research to provide detailed requirements and concepts for advanced Intelligence, Surveillance, Target Acquisition Systems and to guide Combat Surveillance and Target Acquisition developmental efforts for the next ten to twenty years.

a. The principal purposes of this task are to summarize the factors that drive Army Intelligence, Surveillance, Target Acquisition requirements, and identify the major issues which impact the formulation of an Intelligence, Surveillance, Target Acquisition architecture. The timeframe considered shall be the latter 1980's.

b. The contractor shall generally describe planned Army tactics for fighting a central European war, considering both conventional and tactical nuclear conflicts. Korean and Middle Eastern scenarios shall be addressed secondarily, from the viewpoint of how tactics in these areas would differ from those planned for Europe.

c. The contractor shall summarize the Army's Intelligence, Surveillance, Target Acquisition requirements, relating them to the planned tactics. The Intelligence, Surveillance, Target Acquisition needs described shall include not only the sensing functions, but also the links to distribute Intelligence, Surveillance, Target Acquisition information. Variations in scenarios or tactics which strongly affect the Intelligence, Surveillance, Target Acquisition requirements shall be identified. Coordination of this effort shall be accomplished with the US Army Training and Doctrine Command Headquarters and appropriate user agencies.

d. Intelligence, Surveillance, Target Acquisition equipments that are presently fielded or are in development by the services shall be catalogued and briefly described. The developing agency shall be identified, and the performance of each system shall be summarized. The contractor shall briefly assess the adequacy of these equipments to meet Army Intelligence, Surveillance, Target Acquisition requirements, and shall identify the major issues requiring resolution where a clear assessment is not possible. Recommendations for follow-on analyses to resolve these issues shall be provided. A framework shall be developed for investigations into relevant physical sciences and technology, including the current technology base and forecasts for its expansion.

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MITRE CORPORATION (Continued)

e. Results of the above efforts shall be furnished in a report, which shall include a thorough bibliography of recent (past 5-10 years) publications on the topics described above. Additionally, the contractor shall compile a reference library of documents for delivery to the government, comprising the major recent publications in the areas of Intelligence, Surveillance, Target Acquisition architecture requirements, design, and analysis.

5. Communications Development. MITRE efforts are required for support of the Local Distribution Fiber Optic Cable System. The long-term objective of the Army fiber optic communications program is to field substantially improved cable systems as part of an overall modernization of tactical communications systems. Fiber optic technology promises much higher capacity as well as increased reliability and mobility relative to conventional metallic cable. In addition, Electro Magnetic Interference, Power Frequency Interference, and crosstalk are essentially eliminated. There is also the potential that the increased reliability and reduced logistic requirements will result in significant economies on a life cycle cost basis. As an extension of the long haul program, MITRE has begun work on a Local Distribution Fiber Optic Cable System for the Army during the quarter ending FY 1980. This effort was initiated under a temporary arrangement through Air Force. The Army plans to move the local distribution program into 6.4 by 1982. In order to meet this deadline an immediate 6.3 program must be initiated and MITRE support is essential to meeting this schedule. The MITRE role in this project will be that of System Research and Planning. In this role MITRE will provide both general and specific systems research on advanced fiber optic systems. This assistance will include the areas of application analysis, design tradeoff and life cycle cost analysis, specification and evaluation of optical components, preparation of demonstration systems and field support. Specific tasks to be performed by MITRE include local distribution cable analysis, design tradeoff and life cycle cost analysis, specification of optical components, preparation of demonstration system, field support of demonstrations and evaluation.

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NITRE CORPORATION (Continued)

6. Communications Development (Position Location Reporting System - Joint Tactical Information Distribution System Hybrid). The Army has initiated the Position Location Reporting System - Joint Tactical Information Distribution System Hybrid Program to provide a data distribution and position location system for the Army battlefield in the late 1980's. A Letter of Agreement and an Operational and Organizational Concept have been approved on this System. A Study Report provided Office, Secretary of Defense approval and outlined an accelerated acquisition activity based upon product improving already developed Joint Tactical Information Distribution System and Position Location Reporting System terminals. MITRE was the Hybrid system engineer during the conceptual development of the Hybrid System. MITRE's support to the Hybrid in prior years was primarily associated with the Joint Tactical Information Distribution System portion of the Hybrid. In carrying out this task MITRE's efforts also were concerned with the overall Hybrid design and testbed planning. MITRE helped to define the testbed configuration and contractor roles in the testbed. MITRE provided technical inputs to the Position Location Reporting System net management design approach and simulation. The effort in FY 1982 and FY 1983 will expand on the previous effort to include increased emphasis on the whole Hybrid System rather than just the Joint Tactical Information Distribution System portion which is covered under Army's Joint Tactical Information Distribution System Joint Project Office Project. MITRE's previous involvement in the Hybrid conceptual work has provided it with an extensive background knowledge of the Army's operational requirements and it is in a good position to translate these into technical design requirements. In addition, information needed to perform this function is sensitive from a planning and funding standpoint. This type of information can be released to MITRE because its Federal Contract Research Center status.

7. Tactical Electronic Support Systems. MITRE efforts are needed for conduct of research aimed at improving Intelligence, Surveillance, Target Acquisition/Electronic Warfare processing techniques to support the Army tactical commander's needs for battlefield management, operations planning, enemy intentions, and targetting information. MITRE will conduct research, analysis, and experiments involving the automated processing, fusion, and display of mover, shooter, and emitter data for the purpose of developing efficient, automated techniques for identifying and locating critical nodes. The application of mover and emitter processing schemes in being or under development will be assessed for incorporation into the Technical Control and Analysis Center (Division) as a component of an interim All Source Analysis System. In addition, MITRE will design and support acquisition and installation of the Intelligence Processing Laboratory. The Intelligence Processing Laboratory will provide researchers with the facilities for conducting research and experimentation aimed at improving Intelligence, Surveillance, Target Acquisition/Electronic Warfare processing techniques.

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MITRE CORPORATION (Continued)

8. Communications Engineering Development. MITRE technical support is required for the Fiber Optics Transmission System (Long Haul) full-scale development program, to include system engineering, contract monitoring, economic analysis, reliability and maintainability analysis, and fiber optic component and interface equipment evaluation. In addition, MITRE will continue to conduct analyses and long-range planning toward the definition of cost effective application of fiber optic technology. The MITRE role is that of System Engineer for the fiber optic development effort. In this role, MITRE will continue to provide both general and specific system engineering activity assistance, some of which is a continuation of those tasks initiated in FY 1980. This assistance will include continuation of the design trade-off studies, life cycle cost analysis in support of the design trade-off studies, component evaluation, and nuclear hardening effects study. A multi-discipline support group capable of executing both technical and economical studies is required. They should be conducted by professional people experienced in military operations, communications and fiber optics. Such support is not available within this command due to current limitation in manpower. MITRE personnel have unique qualifications for the program planning and implementation of an engineering development program for Army long haul fiber optic programs. MITRE has been involved in the development of several fiber optic demonstration systems for potential military application under an Air Force sponsored Fiber Optics Technology Applications program.

9. Tactical Data Systems Interoperability. MITRE technical support is required as follows:

a. MITRE will provide system engineering and transition analysis support for the Army's work to specify the current baseline and near-term/mid-term transition of the Army Command, Control, and Communications systems employed at all Army tactical echelons. The Center for Systems Engineering and Integration at the Communications R&D Command serves as the Army's tactical Command, Control, and Communications System Engineer. The goal of the Center is to establish a cohesive, well-engineered, affordable, and evolutionary system design which effectively integrates the component fire control, air defense, Electronic Warfare/Intelligence, command information, combat service support, and communications facilities into a single overall system to provide for effective command and control of Army tactical forces at all echelons. A balanced near-term and far-term system design and engineering program is required to achieve those objectives; i.e., exploratory development efforts are

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NITRE CORPORATION (Continued)

required to derive and analyze the future goal-type system designs toward which the Army should evolve and near-term oriented system engineering efforts are required to address the integration of the equipments and systems that are now in development and production. MITRE will provide specialist system design and engineering support to the Communications R&D Command (Center for Systems Engineering and Integration) in the development of force element oriented system level specifications which technically define the Army's Command, Control, and Communications systems at each major organizational element of the Army; e.g., an Infantry Division. The work will include transition analyses to determine the best means for introducing the emerging new equipments and subsystems into the Army's tactical Command, Control, and Communications systems and the definition of the interoperability standards needed to integrate the tactical Command, Control, and Communications facilities into a single cohesive system and to interface the Army systems with the appropriate systems of the other military services and the US allies. MITRE support for the Center for Systems Engineering and Integration system engineering work associated with the design and integration of the Army's Position Location Reporting System - Joint Tactical Information Distribution System Hybrid System will be continued during FY 1982 and FY 1983.

b. MITRE will provide system engineering and transition analysis support for the Army's work to define a near-term and follow-on full implementation for the Army's Executive Control Subordinate System Concept for distribution of information among the functional elements of the Army's Command, Control, and Communications system. In FY 1980, the Army's System Architect, established an Executive Control Subordinate System Concept as their architecture for identifying the information needs/flows that must be accommodated between the Army Control Systems (i.e., fire control, air defense, combat service support, operations, and Electronic Warfare/Intelligence) and between the Commander and each of those Control Systems. The Center for Systems Engineering and Integration has the responsibility to determine the extent to which the identified information flow requirements can be satisfied in the near-term, the technical solution for the near-term, and an evolutionary or transitional approach to eventually provide for the full satisfaction of those objectives. In FY 1982-1983, MITRE will provide specialist system design, analysis, and engineering support to the Communications R&D Command (Center for Systems Engineering and Integration) in the development of the system design that will be established to satisfy the Executive Control

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MITRE CORPORATION (Continued)

Subordinate System requirements. This effort will involve the definition of a near-term solution which can be fielded early through use of the Army's Tactical Computer System and Tactical Computer Terminal equipments. The effort will include specification of interfaces, software expansion/modification, and system level procedures needed for near term fielding; follow-on efforts will be devoted to determining a proposed far-term implementation for the Executive Control Subordinate System concept and the transition path which will be followed to achieve that goal.

10. Tactical Electronic Warfare Intelligence Command and Control Support (BETA). In 1977 the BETA Project was established by OSD to demonstrate the feasibility and utility of prompt coupling of target acquisition sensor data into tactical combat situation displays and fire power systems. In June 1980 Congress requested that the role of the BETA Joint Project Office be expanded to take on the development of operational system prototype derivatives of the BETA Test Bed, namely the Army's All Source Analysis System and the Air Force's Tactical Fusion Division. The goal is to have the implementation of the operational systems under contract by October 1981, with an Initial Operational Capability planned for June 1984. To meet the requirements imposed by Congress and OSD, a program involving four parallel efforts is being developed. For FY 1981 the objectives are as follows:

- a. To complete the evaluation of the Initial Test Bed capability and identify improvements that should be included both in further evaluation of the Test Bed and in the procurement of the operational systems.
- b. To complete the procurement cycle for acquiring an implementation contractor for the operational system, beginning with the preparation of a Request for Proposal and ending with a contract award by 1 October 1982.
- c. To utilize the BETA Test Bed in a COMUS Command Post Execution in June 1981 and a European Field Training Execution in September 1981 for the purpose of learning to use the capabilities in an operational environment and identifying additional future improvements for the operational systems.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

- d. To generate a dynamic tactical simulation capability for supporting Command Post Executions and for evaluating system capabilities.

MITRE will work in direct support of the Director, BETA/All Source Analysis System/Tactical Fusion Division Joint Project Office. Work plans and changes will be coordinated with the Director to assure they are matched to current priorities. MITRE personnel may be collocated with other Joint Project Office personnel at selected government facilities. MITRE will support the Joint Project Office in carrying out the four parallel efforts of its program which are BETA Test Bed Evaluation, Acquisition of All Source Analysis System/Tactical Fusion Division Operational Capabilities, Test Bed Demonstrations and Evaluations and Tactical Simulator Development.

11. Joint Interoperability of Tactical and Control Systems. MITRE technical support is required in two areas as follows:

- a. MITRE will provide system research, analysis, planning, engineering, and technical management support to the Army Test Unit in all phases of its mission in support of the Joint Interoperability of Tactical and Control Systems testing program. This support will include requirements analysis, analysis and evaluation of current and programed capabilities to insure maximum effectiveness and interoperability configuration management, and test planning, conduct, data collection and analysis. MITRE will support the Army Test Unit by:

(1) Assisting in the preparation for and support of the Joint Interoperability of Tactical and Control Systems Compatibility and Interface test objectives, plans, procedures, conduct, data collection and analysis of Air Operations, Operations Control, and Fire Support Test Segments.

(2) Providing the technical support necessary to insure timely execution and completion of assigned Joint Interoperability of Tactical and Control Systems Compatibility and Interface testing to include support to Intelligence and Air Operations Operational Effectiveness Demonstration.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

(3) Defining the performance, design and test requirements of the Army Test Unit Interoperability Test Center configurations for the various Joint Interoperability of Tactical and Control Systems test segments. In addition, MITRE will assist the Army Test Unit with the Technical Controller functions associated with the Fort Monmouth Interoperability Test Center and its associated remote sites.

(4) Continuation of support to the Executive Test Center at Fort Leavenworth. This will require that MITRE maintain an additional site at Fort Leavenworth during FY 1981.

(5) Assisting the Army Test Unit in developing requirements for, and implementing Joint Interoperability of Tactical and Control Systems test support hardware and software including that necessary for on-line test support, data collection and analysis, and Joint Interoperability of Tactical and Control Systems message preparation aids.

(6) Analyzing and evaluating Compatibility and Interface tests to identify problems, correct deficiencies, recommend solutions, and plans for retesting.

(7) Accomplishing user Joint Interoperability of Tactical and Control Systems message interoperability requirements analyses and development of related engineering and software design criteria.

b. MITRE will provide system research, analysis, planning, engineering, and technical management support to the Center for Systems Engineering and Integration in all phases of its Army Command, Control, and Communications, Joint Interoperability of Tactical and Control Systems-related, systems engineering, architecture, and concept/design activities. This support will include requirements analysis and evaluation of current and programed capabilities to assure maximum effectiveness, interoperability, configuration management and test support. MITRE will support the Center for Systems Engineering and Integration by:

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

- (1) Accomplishing user interoperability requirements analyses and development of related engineering design criteria.
- (2) Developing system interoperability validation methodology and test planning.
- (3) Supporting NATO Rationalization, Standardization, and Interoperability planning and plan implementation and execution.

12. Central Army Group Command Control Information System.

a. MITRE provides systems engineering support to the US Army Element, Central Army Group Command Control Information System in determining the Headquarters, Central Army Group Command Control Information System requirements, systems characteristics and required capabilities directed towards the implementation of a Central Army Group Command and Control architecture for the current period through 1985. MITRE is also assisting the US Army Element in defining the Central Army Group requirements to the Allied Command Europe Command and Control architecture which will determine the Allied Command Europe wide Command and Control structure for the post 1985 period. MITRE provides the systems engineering and technical expertise required to assist in the analysis and technical action leading to the refinement of the Command and Control system concept for Headquarters, Central Army Group and the planning and implementation of the concept. MITRE provides a team consisting of analysts and technical specialists to work closely with, and under the direction of, the Central Army Group Command Control Information System Element. This team is located at the Central Army Group Headquarters, and as necessary, draws upon the support of specialists located at MITRE offices in the United States.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. Principal MITRE FY 1980 activities at the Central Army Group included: (1) support to the Central Army Group required inputs to the Supreme Headquarters Allied Powers Europe Command and Control Requirements Analysis tasking; (2) the preliminary analysis and documentation of the Central Army Group display requirements; (3) support during exercise CRESTED EAGLE 80 for the design, implementation and evaluation of a display distribution experiment using the Static War Headquarters Closed Circuit Television system; and (4) the establishment of a microprocessor based test bed to experiment with graphical display presentation and develop analytical tools or predictive analysis.

c. During FY 1981, MITRE is assisting the Command Control Information System/Command and Control Group in the integration of automatic data processing terminals into the Peace and War Headquarters operations. With respect to this effort, MITRE will provide overall planning guidance and assist in staff orientation. Also, development of the initial limited automatic data processing capabilities into an operational system will require MITRE assistance for the derivation and documentation of software specifications for applications programs. Continued MITRE support will be provided to the Command and Control Requirements Analysis effort; also, MITRE efforts will continue to refine and interpret in terms of meaningful graphical presentation the Central Army Group display requirements and investigate predictive analytical techniques ultimately resulting in software specifications for the Central Army Group Command and Control system. Additionally, MITRE will develop suitable engineering options for a viable Leapfrog concept (Alternate War Headquarters). It is anticipated that MITRE will prepare in the 1981 time frame working papers/technical information letters covering the following items: (1) Automatic data processing integration with the Central Army Group Command and Control, concepts of operations/procedures; (2) graphical display requirements specifications; (3) software specifications for the Central Army Group Command and Control applications; (4) planning and results of the liaison officer experiments; (5) possible hardware solutions for Alternate War Headquarters; and, (6) other topics concerning various aspects of the Central Army Group Command and Control system implementation necessary to document urgent problems/solutions.

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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MITRE CORPORATION (Continued)

d. In FY 1982-1983, MITRE will support the Command and Control Information System/Command and Control Group principally in the following areas: (1) Continued integration of Command and Control subsystems at the Static War Headquarters as they become available, e.g., CAMPS, SCARS II terminals, and optimization of procedures for integration of all systems; (2) development of software specifications for Peace and Static War Headquarters; and, (3) planning and development of operational concepts in preparation for the dedicated Central Army Group Fourth Allied Tactical Air Force computer installation at the new Ruppertsweiler II Joint Static War Headquarters facility.

13. United States Army Europe Command and Control Information System Implementation.

a. MITRE is providing system engineering support to the United States Army Europe Command and Control Information System Project Office in the analysis and actions leading to the development and implementation of the US Army Europe Command and Control Information System. This support includes communication system design, technical support in the development of automatic data processing systems, test bed development and implementation, exercise planning and evaluation, technical monitoring of subcontractor support activities and documentation leading to final system implementation. MITRE provides a team consisting of analysts and technical specialists to work closely with, and under the direction of, the US Army Europe Command and Control Information System Project Office. This team is located at the US Army Europe Headquarters, and as necessary, draws upon the support of specialists located at MITRE offices in the United States. MITRE personnel will be assigned to Major Support Command Headquarters, as required, in the performance of their activities. The US Army Europe Command and Control Information System Program objectives are to develop a system which will: (1) Provide an effective system for the US Army Europe to perform its combat service support mission during wartime; (2) to achieve the best structure for wartime readiness during peacetime; and, (3) to develop an effective means of transitioning to the US Army Europe wartime NATO support role from its peacetime posture.

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. During FY 1980 the first module of the Operations Subsystem, the Force Tracking System became operational and its effectiveness was demonstrated in a series of exercises. Another major program milestone was achieved with the publication of the initial set of the US Army Europe standard data elements to support interoperability with other systems. The FY 1981 program is based upon development and expanded testing of the various prototype subsystems. A major milestone in FY 1981 is the first demonstration of key attributes of the Command level system.

c. In FY 1982, MITRE will assist in the integration on newly acquired automatic data processing systems of software and hardware and the evaluation of test bed and exercise operations. A major milestone will be the demonstration of the prototype system during CRESTED EAGLE '82. Based upon the results of these tests, functional descriptions will be finalized for subsystem module and integration will begin of operating levels subsystems and command level system modules. The analysis of alternate communications network will be completed and formalized for submission to the 5th Signal Command. MITRE will assist in the review for selection of subcontractors to implement the design. A major task will be the development of formal evaluation procedure for the US Army Europe Command and Control Information System.

d. During FY 1983 efforts initiated in FY 1982 will be continued. Functional descriptions will be completed and support will be provided for the final system components. MITRE will prepare plans for system test, training and overall maintenance of the system. A major milestone will be the use of the integrated system in WIRTEX '83. Technical support will be provided in monitoring contractor implementation of the final Command and Control Information System configuration.

14. Army Command and Control Master Plan.

a. The Army has recently promulgated the Army Command and Control Master Plan to provide a uniform understanding of total system requirements and to develop an integrated program plan for the development of command and control capabilities. The Army Command and Control Master Plan is to be a "living document" (updated annually) to guide the systems acquisition process and decisions on fielding new command and control capabilities over a five-year planning horizon.

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. MITRE will provide technical support to the Command, Control, Communications, and Intelligence Directorate of the Combined Arms Combat Development Activity, Fort Leavenworth, Kansas. This support will consist of systems research and analysis to support the annual update of the Army Command and Control Master Plan. The initial effort will include documenting a methodology for annual updates which will allow this process to consider information requirements and command and control capabilities within a context of doctrine and tactics (using several levels of conflict expressed as Situations, Actions, and Missions) as well as tactical organizational structure. The methodology is to explicitly address system interface requirements. Integrated baseline system capabilities will be assessed to determine shortfalls in functional capabilities. In addition, longer term research and analysis will be carried out based upon the concept of a unified methodology for the Command, Control, Communications, and Intelligence, as developed by the Combined Arms Combat Development Activity. This will require the determination of an acceptable set of essential elements of analysis, which will include effectiveness-oriented quantitative measures such as measures of effectiveness, measures of performance, and measures of support; and a detailed description of the proposed analytic technique to be applied. Candidate force-on-force models capable of relating Command, Control, Communications, and Intelligence systems capabilities to force effectiveness will be identified and used (singly and jointly, as appropriate) on an interim basis. This overall research effort will be directed in the long run towards the development of a force-on-force simulation "kernel" by means of which individual models or subprograms relating to specific functions and mission areas may be exercised interactively as an evaluation tool. Within the constraints of available resources, attention also is to be directed towards the development of an analytic (to include a model of the information network at corps and below) means of investigating dynamic information loads and flows within the Command, Control, Communications, and Intelligence architecture (DYNAMIC). This work is an extension of the current methodology used in generating the Technical Interface Concept.

c. The Army's publication of the Army Command and Control Master Plan established goals and objectives for a continuing program of integrated planning in the development of cost-effective Command, Control, Communications, and Intelligence capabilities and placed a new priority on the acquisition of much needed capabilities by 1985. Achievement of these high priority goals requires a sustained effort of review and resource planning, as well as the refinement of methodologies appropriate to this task. Annual updates of requirements and the technical analysis of feasible program and system alternatives is an urgent, high priority task having significant impact on Army research, development, and procurement programs in the command, control, communications, and intelligence system area.

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MITRE CORPORATION (Continued)

15. Transition Communication Planning.

a. The US Army Communications Command is the combat developer and user for the Echelons Above Corps and Defense Theater Communications System communications and responsible for the interoperability and connectivity between systems in the of the Joint Chiefs of Staff/Defense Communications System/Major Army Command Contingency or Operational Plans that requires that it interoperate with all the aforementioned systems. It is necessary that the operational architecture of these US Army Communications Command provided systems and indigenous systems in the Theater be compatible. Programs such as TRI-TAC, will provide most of the equipment to be fielded in the near future, and are of high level priority within the Department of Defense. There are known incompatibilities with current inventory of the US Army Communications Command and TRI-TAC, will equipment. Therefore it is advisable to utilize MITRE assistance since they have the required expertise in this area, in-part due to their involvement with the US Air Force in a similar situation.

b. MITRE efforts are required to advise and assist the US Army Communications Command Plans Division in developing and implementing actions to accommodate the new Generation digital communication equipments into the Echelons Above Corps, the Army portion of the Defense Communications System and Special Transportable Missions. The effort will involve the preparation of technical analysis, specific engineering analysis, associated cost analysis and technical guidance. The Echelons Above Corps/Echelons Above Division, Defense Communications System/Operational Plans) concepts, doctrine, studies, plus associated equipment and Special Transportable (Contingency Plans and Operational Plans) concepts, doctrine, studies, plus associated equipment capabilities/limitations will be considered in this effort. This will insure that the various equipments to be used in these systems will efficiently and economically interoperate.

c. In FY 1982, MITRE will provide engineering expertise to advise, guide the transition of TRI-TAC developed equipment into the Echelons Above Corps and resolve interoperability problems in the Army portion of the Defense Communications System and for Special Transportable configuration (in support of the Joint Chiefs of Staff/Defense Communications System/Major Army Command contingency/operational plans). Requirements for this work are expected to continue at least through FY 1983.

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NITRE CORPORATION (Continued)

The following three areas will commence during this time frame:

- (1) Study and project the trends of the Department of Defense and Army and Commercial Communications-Electronics networks and systems into the post-1985 time frame to determine the overall technical capabilities needed.
- (2) Analyze the impact of domestic and foreign policies, the Joint Chiefs of Staff and Army objectives, industry research and development, and commercial network developments.
- (3) Determine those key technical features of the US Army Communications Command assigned Communications-Electronics missions (e.g., Echelons Above Corps, Army Base Communications, Strategic Army Communications System, etc.) that are subject to being impacted adversely or favorably by external drivers.

16. US Army Communications Command Command and Control Technical Support.

a. The US Army Communications Command World-Wide Military Command and Control System Management Office has the responsibility for the World-Wide Military Command and Control System Selected Architecture as well as a support mission for other US Army Communications Command Command, Control, and Communications projects. These programs include the Joint Crisis Management Capability, Jam-Resistant Secure Communications, US European Command Static War Headquarters, Tactical Nuclear Forces Command, Control, and Communications Upgrades, Army Command and Control Master Plan, and other anticipated Command, Control, Communications, and Intelligence projects. NITRE has supported the World-Wide Military Command and Control System Management Office programs during the current and past fiscal years and the requirement for NITRE support will continue for the future years. These programs are of a high-level priority within the Department of Defense and program schedule constraints make it highly advisable to continue to employ the services of NITRE.

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. During the past fiscal year MITRE provided support in the engineering design and analysis of the Tactical Nuclear Forces Command, Control, and Communications communication facilities and in the development of requirement and specifications for the Joint Crisis Management Capability and the Jam-Resistant Secure Communications terminals. In addition, MITRE participated in the Tactical Nuclear Forces Command, Control, and Communications planning efforts identifying the system analysis and technical criteria to be used in the selection and evaluation of the Tactical Nuclear Forces Command, Control, and Communications communication upgrades.

c. During FY 1982 and FY 1983, MITRE will continue to assist the US Army Communications Command World-Wide Military Command and Control System Management Office in their technical planning, engineering and direction efforts in support of US Army Command, Control, and Communications programs. The effort will involve the development of management and implementation plans, the preparation of technical analysis and associated cost estimates, specific engineering analysis, and technical guidance on the current and future command, control, and communications programs supported by the US Army Communications Command World-Wide Military Command and Control System Management Office. Specifically, emphasis will be on efforts in support of the Joint Crisis Management Capability, the Jam-Resistant Secure Communications, the Tactical Nuclear Forces Command, Control, and Communications, the Army Command and Control Master Plan, and European Theatre Command Centers.

17. Army Base Information Transfer System/Walter Reed Medical Center Information Transfer System.

a. MITRE efforts are required for continuation of support to the Army Base Information Transfer System/Walter Reed Medical Center Information Transfer System. In prior years, MITRE developed and implemented a patient registration system upgrade; monitored design of production engineering Bus Interface Units; provided testing, evaluation, and certification of production engineering Bus Interface Units; implemented technical control system; and assisted in design of high resolution for fluoroscopy video tests.

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. In FY 1981, MITRE is providing continued System Engineering support to Walter Reed Medical Center, the Army Medical Department, and the Tri-Service Medical Information System in the implementation and interfacing of communications systems. The communications systems to support the medical Automatic Data Processing systems within the Army Medical Department will be an integrated multi-mode communications systems typified by the Walter Reed Information Transfer System installed and tested at the Walter Reed Medical Center under the Army Base Information Transfer System/Walter Reed Information Transfer System project over the last two years. Work to be performed by MITRE during 1981 is to (1) provide continuing technical support in interfacing the major Hospital Information System onto the Walter Reed Information Transfer System cable at the Walter Reed Medical Center; (2) provide the design, installation, testing, and monitoring of a technical control/performance monitoring system at Brooke Army Medical Center, Fort Sam Houston, Texas; (3) continue to provide support in interfacing Automatic Data Processing medical systems such as the patient appointment system, record tracking system, and the clinical laboratory system onto the Walter Reed Information Transfer System cable at the Walter Reed Medical Center; (4) continue to provide technical support in interfacing Automatic Data Processing medical support systems such as the inpatient accounting system, physiological monitoring system, clinical laboratory system, record tracking system, patient appointment system with the Hospital Information System at Walter Reed Medical Center; (5) continue to provide support in designing, implementing, and/or upgrading integrated communication systems at Army Medical Treatment Facilities to support the Tri-Service Medical Information System, local Automatic Data Processing, and other communications requirements; (6) provide support in the operational use of the production Bus Interface Units; (7) continue to assist the Tri-Service Medical Information System-Army in implementing and interfacing the Tri-Service Medical Information Systems and communication requirements into Army Medical Treatment Facilities; (8) continue to specify changes to and provide technical assistance in upgrading communications in Army Medical Treatment Facilities to take advantages of new technology in the Bus Interface Units and broadband multimode communication techniques.

c. During FY 1982-1983, MITRE will develop request for procurement documents to enhance current Bus Interface Units design; provide evaluation and design and implementation of the Tri-Service Medical Information System Automatic Data Processing system; develop Bus Interface Units software; assist in the design and installation of broadband communication systems; and, assist in the interface of multi-mode communication systems.

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| FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE | FY 1983 ESTIMATE |
|--|-------------------|---------------------|---------------------|---------------------|
| TOTAL PROGRAM SUMMARY BY APPROPRIATION | | | | |
| Research, Development, Test and Evaluation, Army. | 20,794 | 22,922 | 26,750 | 29,134 |
| Operations and Maintenance, Army. | 2,800 | 3,197 | 3,814 | 4,519 |
| Total Federal Contract Research Center Requirement. | 23,594 | 26,114 | 30,564 | 33,653 |
| Subcontract effort excluded from this amount | 11,146 | 15,459 | 16,619 | 17,600 |

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

Section 7

PART I. UTILIZATION OF SECTION 2353, TITLE 10 AUTHORITY

Specialized R&D facilities and/or equipment determined to be necessary for the performance of a contract for a Military Department for research and development may be constructed by or furnished to the contractor and funded from appropriations available for research, development, test and evaluation. The Congress enacted this legislation, now 10 U.S.C. 2353, in 1976. This policy is executed through DOD Directive 4275.5. Under this policy, the Secretaries of the Military Departments or their designees, and the Directors of Defense Agencies may approve facilities projects up to \$3,000,000; the Under Secretary of Defense Research and Engineering approves projects exceeding \$3,000,000. The Congress is notified in advance of starting any project involving construction, regardless of the dollar amount. The table below provides a summary listing of all such projects accomplished in FY 1980 and planned in FY 1981, FY 1982, and FY 1983.

| Facility/Equipment | RDTE Project Number | Contractor | Location | Total Obligation Authority (Thousands of dollars) | | |
|--------------------|---------------------------|------------|----------|--|---------|---------|
| | | | | FY 1980 | FY 1981 | FY 1982 |

SECTION I

Projects Accomplished or Underway

Negative

SECTION II

Projects Planned or Projected

Negative

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Section 7 (Cont'd)

MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

PART 2. UTILIZATION OF RDTE APPROPRIATION FOR FACILITIES AT GOVERNMENT-OWNED/GOVERNMENT-OPERATED INSTALLATIONS

The RDTE appropriation may finance the development, design, purchase, and installation (including directly related foundations, shielding, environmental control, weather protection, structural adjustments, utilities and access) of equipment or instrumentation required for research, development, test and evaluation activities. The table below provides a summary listing of all such projects for the installation of equipment, where the cost of installation is \$100,000 or more, accomplished in FY 1980 and planned in FY 1981, FY 1982, and FY 1983.

| Facility/Equipment | RDTE Project Number | Location | Total Obligational Authority (Thousands of Dollars) | | |
|--------------------|---------------------------|----------|--|---------|-----------------|
| | | | FY 1980 | FY 1981 | FY 1982 FY 1983 |

SECTION I

Projects Accomplished or Underway

| | | | | | |
|---|-------------|---|-----|---|---|
| Anechoic Chamber for Microwave Research | 612771.A805 | Walter Reed Army Institute of Research, Building 40 WRAMC, Washington, DC | 150 | - | - |
| | 623710.DK70 | Bldgs 317 and 357, Night Vision & Electro-Optics Laboratory, Fort Belvoir, Virginia | 432 | - | - |

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

| Facility/Equipment | RDTE Project Number | Location | Total Obligational Authority (Thousands of Dollars) | | | |
|--------------------|---------------------|----------|--|---------|---------|---------|
| | | | FY 1980 | FY 1981 | FY 1982 | FY 1983 |

SECTION II

Projects Planned or Projected

| | | | | | | |
|---|-------------|---|---|-----|-----|-----|
| Computer Room Air Conditioning | 611102.B52C | US Army Engineer Topographic Laboratory, Building 2592 Fort Belvoir, Virginia | - | 250 | - | - |
| | 612707.A855 | | | | | |
| Installation of 29 Built-in Sterilizers (Replacement) | 665801.MM32 | USA Medical Institute of Infectious Diseases, Building 1425 Fort Detrick, Maryland | - | - | 516 | 516 |
| | | | | | | |

PART 3. UTILIZATION OF RDTE APPROPRIATION FOR MINOR CONSTRUCTION

For in-house installations, construction projects in support of R&D for \$100,000 or less are funded from RDTE appropriations. Such expenditures are authorized by 10 USC 2674 and the applicable provisions of the current DOD Appropriations Act. Under this procedure, project approval at this level is authorized by the Major Command concerned, or delegated to R&D installation commanders as appropriate. The table below provides a summary total of such minor construction accomplished in FY 1980, and the estimated amounts planned for FY 1981, FY 1982, and FY 1983. All minor construction must result in a complete and usable facility. In no event is two or more minor construction projects or minor and major construction projects to be contrived to form a usable facility.

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDTE, ARMY

| | FY 1980 | FY 1981 | FY 1982 | FY 1983 |
|--|---------|---------|---------|---------|
| | 3,136 | 3,725 | 2,977 | 2,674 |

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY RTE, ARMY APPROPRIATION

RTE INSTALLATION PROJECT FACT SHEET
(Supporting Projects Over \$400,000)

I. Facility/Equipment: Alter Buildings 317 and 357 to include partitions, recessed lighting, suspended ceiling, provisions for air, gas, and chemical piping, repair walls, install workbenches, sinks, fumehoods and exhausts, repair floors. Install warning lights and electrical safety devices.

II. R&D Program Element: 6.37.10.A

III. R&D Project Number: DK70

IV. Location: Night Vision and Electro-Optics Laboratory, Fort Belvoir, Virginia

V. R&D Funds Programed: FY 1980 \$412,000

VI. Other Funds: None

VII. Relationship to R&D Program Element: This construction alterations, equipment installation, maintenance and repair are required to provide modern laboratory facilities for research, development, experimentation, technical data recording, experimental fabrication and testing for various types of laser devices to be utilized for distance ranging, fire control and target designation/signature.

VIII. Rationale for Funding Effort in R&D: Less than \$75,000 of this effort is for construction, the remainder is for installation of equipment in place. This facility is used solely for R&D missions and is fully supported and operated with R&D funds.

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

RDTE INSTALLATION PROJECT FACT SHEET
(Supporting Projects Over \$400,000)

- I. Facility/Equipment: Replace 29 built-in sterilizers.
- II. R&D Program Element: 6.5P.01.A
- III. R&D Project Number: MM32
- IV. Location: US Army Medical Research Institute of Infectious Diseases, Building 1425, Fort Detrick, Maryland
- V. R&D Funds Programed: \$2,064,000 for four-year period beginning FY 1981
- VI. Other Funds: None
- VII. Relationship to R&D Program Element: This program element is used to fund activities which benefit all R&D projects supported in R&D laboratories.
- VIII. Rationale for Funding Effort in R&D: This facility and equipment is used solely for R&D missions.

UNCLASSIFIED

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Section 8
DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PROJECT DATA FOR CONSTRUCTION AT GOVERNMENT-OWNED
FACILITIES FUNDED BY RDT&E, ARMY APPROPRIATION

NOT APPLICABLE

UNCLASSIFIED

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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